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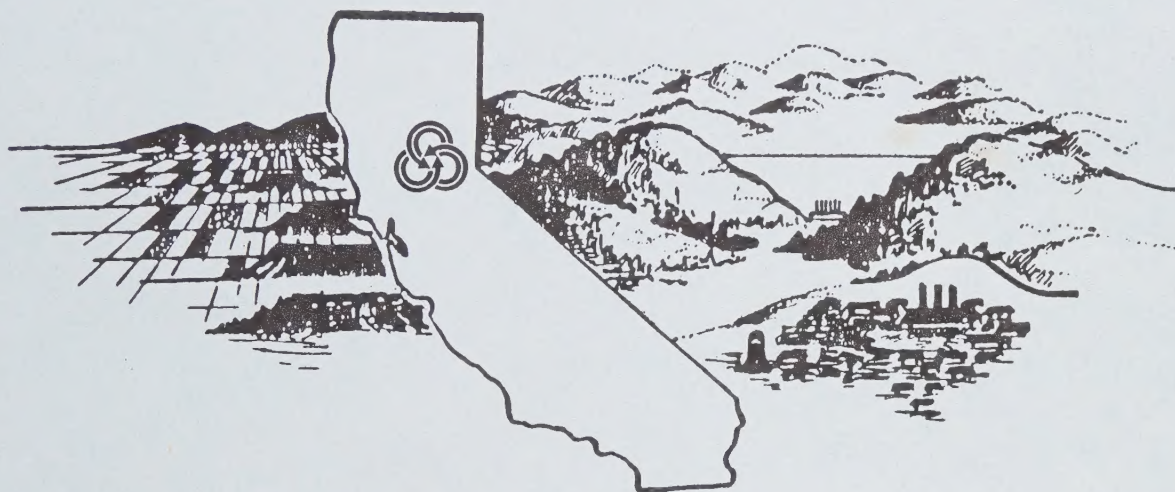
CIRCULATION

ELEMENT

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# Butte County General Plan

MAY 1984




C I R C U L A T I O N   E L E M E N T

BUTTE COUNTY GENERAL PLAN

August, 1983

March, 1984





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CIRCULATION ELEMENT  
BUTTE COUNTY GENERAL PLAN

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## List of Circulation      Element Acronyms

AADT	Annual Average Daily Traffic
ALUC	Airport Land Use Commission (Butte County Planning Commission)
BCAG	Butte County Association of Governments
BCT	Butte County Transit
CAFE	Corporate Average Fuel Economy
CATS	Chico Urban Area Transportation Study, also, Chico Area Transit System
CEQA	California Environmental Quality Act
CTC	California Transportation Commission
DOF	California Department of Finance
DWR	California Department of Water Resources
EIR	Environmental Impact Report
FAP	Federal Aid Primary
FAS	Federal Aid Secondary
FAU	Federal Aid Urban
FTIP	Federal Transportation Improvement Program
MPO	Metropolitan Planning Organization
OTS	Oroville Transit System
OWID	Oroville Wyandotte Irrigation District
PG&E	Pacific Gas and Electric Company
PUC	California Public Utilities Commission
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
SMSA	Standard Metropolitan Statistical Area
STA	State Transit Assistance Act (SB 620 - 1979)
STIP	State Transportation Improvement Program
TDA	Transit Development Act (SB 325 - 1971)
TSM	Transportation Systems Management
UMTA	Urban Mass Transit Administration
VMT	Vehicle Miles of Travel
WAPA	U. S. Western Area Power Administration



**Butte County**

**Circulation Element**

**Part One**

**Sections 1.0 to 6.0**

**Basis for Policy**





## SECTION 1.0

### INTRODUCTION

The Circulation Element of the Butte County General Plan is a guide to managing and developing the future transportation and circulation system in the County. Our transportation system is a basic support network for providing the mobility needed to sustain our social, economic, and recreational life. Continued maintenance of this transportation system is vital for insuring that we continue our present level of mobility, while given the chance to develop and improve upon it in the future. The intended timeframe of the Element carries to the year 2000, with analysis, evaluation, and planning focused on policies and programs within five and ten year timeframes.

#### Transportation is a huge capital investment

An important aspect to appreciate about the Butte County transportation system is the huge capital investment that it represents. All levels of government; federal, state, and local, hold in trust a huge public investment in managing, maintaining and planning our transportation system. In Butte County, the state highways form the backbone and lifeline of the County's highway network, while the County and its five incorporated cities serve to provide the transportation network's local requirements. For all of this, there must be coordination and planning both between and within public road and transportation agencies and their departments. The risk of improperly developing a transportation system can create problems that negatively affect present and future mobility; creating potential for safety hazards, wasted and unnecessary public and private expenses, and waste or poor utilization of otherwise useful land and open space. With adequate information and prudent forethought we have the opportunity to avoid many problems that could cost us more in the future, meanwhile seizing on opportunities that can help insure a more pleasant and stable transportation future.

#### Need for revision

These fundamental concerns bring to us the reasons why to revise and update the General Plan's Circulation Element. As road financing, land use, and public transportation issues have changed over time, the original Circulation Element can no longer adequately serve to help guide the County's transportation goals, objectives, and policies for the long term.<sup>(1)</sup> A formidable challenge to the County's Circulation Element is to clearly indicate how we intend to maintain and develop a transportation system which will help to improve our quality of life here in Butte County.

---

<sup>(1)</sup> Butte County's Circulation Element was drafted in 1971.

This Circulation Element was prepared for Butte County by staff of the Butte County Association of Governments (BCAG), who worked in conjunction with the Butte County Planning Department staff. The five cities of Butte County and the California Department of Transportation were consulted throughout this plan's development regarding their input and concerns.

### 1.1 Organization of the Circulation Element

The Element is organized into three basic components and should be read accordingly. The first component, Part One-Basis for Policy, is intended to be an analytical and descriptive basis for developing a transportation policy, and includes Sections 1.0 through 6.0. The second component, Transportation Issues and Policies, is found in Section 7.0 and sets forth Butte County's countywide and urban area transportation goals, objectives, policies, and programs to the year 2000. The Appendices contains additional information and data supplements referred to by the previous text, including the Element's environmental impact report.

### 1.2 Basic Planning Requirements

A number of state planning laws and regulations relate directly and indirectly to the development of the Butte County Circulation Element. Among these are state requirements involving the development of general plans, local regional transportation plans, state transportation plans and environmental impact review and reporting. It is also important to coordinate transportation plans as they relate to each city's general plan and its spheres of influence. Also, consistency should be found between the Circulation Element and the Butte County Regional Transportation Plan and County Air Quality Plan. Although state planning requirements leave local government's substantial discretion regarding the level of citizen participation during preparation of their plans, an active citizen participation program regarding planning issues is always a benefit to the local planning process.

#### 1.21 General Plans

Each incorporated city and county in California is required to prepare and maintain a comprehensive general plan which sets forth objectives, principles, standards, and plan proposals regarding its future development.<sup>(1)</sup> The general plan must contain nine mandatory elements and must meet minimum standards in the law. One of these required elements is a circulation element, which shall consist of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use

---

(1) State statutes covering local planning laws are found in the California Government Code commencing with Title 7 - Planning and Land Use.



element of the general plan. (1) The Circulation Element must be consistent with other portions of the General Plan and its elements comprising of an integrated, internally consistent, and compatible statement of policies. (2) It is the option of Butte County to combine elements to its General Plan as long as they still comply with the minimum requirements set forth for each of the mandated elements.

Planning law requires that the County's zoning be consistent with the General Plan. (3) Zoning which is not consistent with the General Plan shall be changed so that it is consistent with the plan.

### 1.22 State and Regional Transportation Plans

Transportation planning agencies involved in developing and maintaining Butte County's regional and countywide circulation system include the California Transportation Commission (CTC) and the Butte County Association of Governments (BCAG). Caltrans is responsible for implementing statewide policy of the CTC. Both the CTC and BCAG are required to develop and maintain respective state and regional transportation plans which rely on input from local city and county government general plans, including their respective circulation elements.

The major emphasis of the Butte County Regional Transportation Plan (RTP) regards transportation improvements which are needed during the next five years. New transportation projects that plan to utilize state or federal monies must be included in the RTP. Projects for maintenance, rehabilitation and reconstruction are not included in the RTP. (4) The Butte County RTP is prepared and updated by BCAG and used as a guide for preparing BCAG's annual Regional Transportation Improvement Program (RTIP) and Federal Transportation Improvement Program (FTIP). The Butte County RTIP annually describes and sets priority for new transportation projects proposed and needed in Butte County during the next five year period, and the FTIP sets priorities for federally funded transportation projects in the Chico urban area.

The planning relationship between the RTP and the County's Circulation Element is parallel. The Circulation Element's countywide guidance and programs, however, should precede and influence those programs stated in the RTP. The principle differences between the Circulation Element and the RTP is that the former is intended to provide more long-term transportation planning guidance as part of the County's General Plan while the later focuses on shorter term transportation development programs that include both city and county plans.

- (1) Government Code Section 65302
- (2) Government Code Section 65300.5
- (3) Government Code Section 65860(a)
- (4) Government Code Section 65082

State law has been interpreted to allow county circulation elements and regional transportation plans to be written as one document, as long as the mandated requirements of each plan is adequately covered in the combined document. The Circulation Element should act as a major source of information for future RTP updates.

### 1.23 Environmental Requirements

The California Environmental Quality Act (CEQA) and the federal Clean Air Act are the most significant pieces of environmental legislation affecting local transportation planning in Butte County. CEQA requires that an environmental impact report (E.I.R.) be written when a proposed action could have a significant effect upon the environment. An E.I.R. is a public disclosure document and compliance should lead to an attempt for complete and substantiated information which describes the range of potential environmental impacts that could be caused by a proposed action or project; and the methods and extent of commitments to implement mitigation of any significant environmental impacts. Some of the significant environmental impacts typical of transportation projects include cumulative impacts caused by growth accommodation, direct and indirect impacts on air quality, noise, wildlife habitat, open space, scenic quality, and water quality.

The Clean Air Act requires that non-attainment air quality areas such as Butte County develop and implement a non-attainment air quality plan which shows how to meet federal air quality standards by no later than 1987. The Act affects transportation plans by requiring that certain air quality enhancing transportation planning measures be implemented if the air quality standards cannot be met by controls on stationary and area sources and motor vehicle emissions. Butte County is a marginal non-attainment area for ozone, carbon monoxide, and total suspended particulate, but is presently not required to implement any transportation programs to improve its air quality to meet federal clean air standards.

### 1.24 Citizen Participation

Public participation and involvement in the planning process is the keystone to an open and democratic process of government. The public's involvement through informative meetings, publicity, and public hearings is an essential component to developing a comprehensive general plan, including any of its mandatory elements. To this end, the development of this Circulation Element included a number of informative workshop meetings and publicity releases throughout the County at the beginning of the formal public review process.



## Section 2.0

### EXISTING TRANSPORTATION SYSTEM

This section describes the existing Butte County transportation system. The general physical situation and capacity of the County's road, street and highway network is described, as well as current programs involving public transportation, transportation systems management, bicycle ridership, pedestrian access, aviation and commercial goods transportation, including utility corridors.

#### 2.1 Roads, Streets and Highways

Roads, streets and highways provide the backbone to circulation in and through Butte County. The following describes basic characteristics of the County's road system, its traffic levels, and maintenance programs.

##### 2.11 Basic Road and Highway Network

Butte County's road and highway network provides land access at a regional, countywide, urban area and local level. This network is classified functionally in Section 5.0. Improvement standards and programs are related according to the kind of traffic service and accessibility they are to provide. The functional classifications described in Section 5.0 briefly include:

Principal Arterials (urban and rural) - Including major state highway routes connecting Butte County to the rest of the region and largest intra-city streets.

Minor Arterials (urban and rural) - Including major urban area streets and highways and major rural roads and highways that connect the County's cities, communities and many rural population centers.

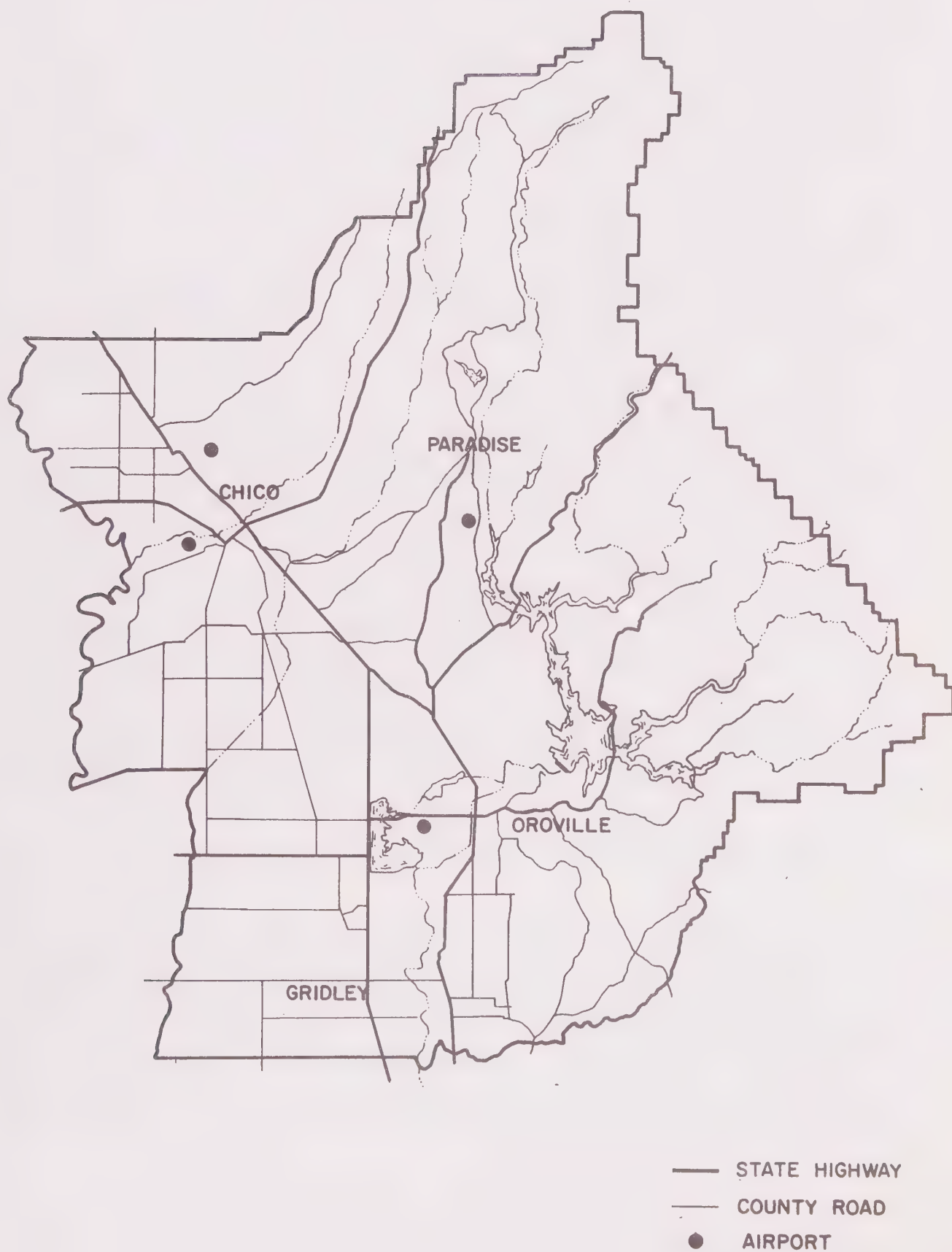
Collectors (urban, major and minor rural) - Including roads and streets which provide access from local streets and roads to arterials.

Local Streets and Roads (urban and rural) - Including roads and streets that provide direct access to properties and are not intended to service large amounts of traffic. Streets serving commercial and industrial traffic often function like local streets, but are built to different standards to serve commercial and industrial access needs.

Figure 1 on the following page illustrates the network of State and County highways and roads.

# STATE AND COUNTY HIGHWAYS AND ROADS

FIGURE 1



In rural valley areas, arterials serve to connect communities and rural service centers to regional arterials and larger communities and cities. The main purpose of rural valley collectors is to provide efficient farm to market access for agricultural goods, services and commodities.

In the rural foothill and mountain areas, arterials provide the direct surface transportation link between foothill and mountain communities and major arterials and population centers located in the Sacramento Valley. The only paved highways which cross the mountains east of Butte County from the Sacramento Valley are State Routes 32 and 70.

There are eight governmental jurisdictions in Butte County who are responsible for public road maintenance and construction. All total, there are approximately 2,230 public road miles in Butte County, of which the County is responsible for 1,377.4 miles. Road miles by jurisdiction are listed in the following table:

Table 1

Road Miles in Butte County by Jurisdiction

<u>Jurisdiction</u>	<u>Road Miles</u>
State of California	181.3
Butte County	1,377.4
City of Biggs	8.7
City of Chico	100.1
City of Gridley	21.7
City of Oroville	71.0
Town of Paradise	88.1
U. S. Forest Service	402.0
	<u>2,250.3</u>

Source: Butte County Regional Transportation Plan,  
Butte County Association of Governments, 1982

The 1982 Butte County RTP estimates that there were slightly more than two million average daily vehicle miles of travel (VMT) in 1978.<sup>(1)</sup>

(1) Butte County Regional Transportation Plan, BCAG, 1982, pg. II-7.



Travel in the County's rural areas accounted for 49.9 percent of the total VMT, while urban area travel accounted for the remaining 50.1 percent, including; Chico, 26.8 percent; Oroville, 13.9 percent; Paradise, 7.2 percent; and Gridley, 2.2 percent. Also, 1978 vehicle registration data for Butte County shows over 63,000 automobiles, about 26,500 commercial trucks, and about 5,300 motorcycles.(1)

## 2.12 Traffic Conditions

As expected, Butte County's busiest highways are those that serve as urban area arterials in Chico, Oroville and Paradise. In the Chico area, a number of city maintained streets and a few county maintained streets exceed annual average daily traffic (AADT) counts of 20,000. Generally, segments of most 4-lane surface streets will approach or exceed the 20,000 AADT level in Chico. In Oroville, peak traffic counts over 20,000 AADT occur on Oroville Dam Boulevard (SR 162) east of SR 70. Traffic volumes in the remainder of the Oroville area are significantly lower than along State Route 162. Peak traffic volumes in the Paradise area occur on the Skyway between Pearson and Billie Roads. Traffic counts on the Skyway in County jurisdiction at the southern and northern town limits are both in the range of 10,000 AADT. In Gridley, peak traffic volumes occur on State Route 99.

Traffic growth in Butte County has roughly paralleled population growth since the early 1970's. The County's largest traffic volume growth occurred in and between the Chico, Oroville and Paradise urban areas during that period. Butte County traffic growth is discussed further in Section 6.0 - Transportation Forecast.

Presently, Butte County's arterial roads and highways generally have adequate capacity to accommodate existing traffic volumes. However, several major highways are presently nearing capacity, including State Route 99, south of Chico to Pentz Road; and the Skyway, north of the Paradise town limits to approximately Coutolenc Road. In Oroville, roadway constrictions caused by two railroad overcrossings on Oro Dam Boulevard (west of Lincoln) present a safety and capacity problem which is in need of immediate correction. Another existing safety problem occurs at the historical, but narrow, Gianella Bridge on State Route 32 at the Butte-Glenn County line on the Sacramento River. Other existing highway improvement needs are related to road maintenance and safety projects in the County. Future road and highway needs and forecasts are further developed in Section 6.0.

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(1) Butte County Regional Transportation Plan, BCAG, 1982.

### 2.13 Existing Highway Construction and Maintenance Programs

Highway construction and maintenance programs respond to existing highway needs in two general ways. First, there are on-going, unscheduled road programs that respond to maintenance needs caused by unpredictable road wear or failure, damage from accidents or vandalism, or damage from natural events such as floods, wind, slides, and freezing temperatures. Second, there are scheduled road maintenance and construction programs which respond to planned roadway maintenance and safety improvements, as well as to demands for new roads and capacity increases. In recent years, the availability of local, state and federal road funds has often been a major constraint to implementing an adequate and timely road maintenance and construction program. Respective city, county, regional and state governments in Butte County each develop annual or semi-annual road maintenance and construction program schedules for roadways under their jurisdiction.

At the state level, Caltrans annually updates and submits to the California Transportation Commission (CTC) a proposed State Transportation Improvement Program (STIP), the CTC adopts a final STIP annually, as described in subsection 1.22. The Butte County Association of Governments (BCAG) is responsible for a number of countywide planning concerns, including air quality planning and regional transportation planning. Part of BCAG's responsibility is to prepare and update the County's Regional Transportation Plan (RTP), and Regional Transportation Improvement Program (RTIP), as mentioned in subsection 1.22.

Also, at the County level, the Public Works Department is responsible for proposing a list of priority rural road projects which are anticipated to be funded by federal secondary road funds (Federal Aid to Secondary - FAS). Butte County's FAS priority list currently presents one project per year. The FAS priority list is included in the RTP. The County's FAS designated roads are indicated by Figure 2.

In urban areas, streets and highways which serve as major arterials or collectors are usually designated as Federal Aid to Urban (FAU) routes. Projects on these urban streets and highways may be proposed for federal FAU funding.

### 2.2 Public Transportation

The level of public transportation service in Butte County increased dramatically in 1981 and 1982 with the start-up of three fixed route and scheduled bus systems. The intercity Butte County Transit System (BCT) began service in June, 1981, by providing weekday service between the communities of Chico and Oroville, Chico and Paradise, and Oroville and Palermo-Gridley-Biggs. The Oroville Transit System (OTS) began serving the Oroville urban area in July, 1981, with a weekday, 2-bus, fixed route system. The Chico Area Transit System began serving the Chico urban area in February, 1982, with a five route, full week bus service.





Figure 2

Federal Aid to Secondary Road System

(see jacket)



The first year of operation was highly successful for the BCT system as ridership increased steadily into the second year, exceeding minimum fare box requirements set by the state. (1) By the second half of 1982, BCT commuter ridership had increased beyond the capacity of the system and temporary relief was sought by a bus sharing agreement with the City of Chico which made larger 30-passenger Chico buses available while the County applied for funding of larger buses. It is estimated that BCT carried about 1.5 percent of all personal trips between Chico and Paradise and near 2.0 percent of the personal trips between Chico and Oroville in 1982.

The bus systems serving the Chico and Oroville urban areas have experienced increasing ridership rates since their start-ups. The Chico system should continue to expand its ridership as a result of improved routing and scheduling. The Oroville system has had steadily improving fare box revenue since its start-up.

Other public transportation programs currently in Butte County include the following:

- . Chico Clipper - This is a taxi dial-a-ride service to the elderly and handicapped and operates daily in the Chico area.
- . Oroville Express - This is a dial-a-ride service to the elderly and handicapped and operates daily in the Oroville area.
- . Paradise Express - This is also a dial-a-ride service to the elderly and handicapped and operates daily except Sunday, in the Paradise area.
- . Gridley Golden Feather Flyer - This daily dial-a-ride service operates in the Gridley area.

The only private bus carrier operating in Butte County is Greyhound Bus Company, which serves Chico, Gridley, Oroville and Paradise on a regional and state-wide basis. Traditionally, the California Public Utilities Commission (PUC) has set routes for private inter-state bus companies operating within the state on the basis of providing much needed regional and state-wide bus connection to the state's small, rural communities. However, the federal Bus Regulatory Reform Act of 1982 allows these bus companies to cut or reduce service on unprofitable routes such as those serving lightly populated rural areas. The immediate affect has been for companies like Greyhound to begin dropping smaller, remote communities from their service and reduce service to other cities. The full implications of the Bus Regulatory Reform Act on Butte County is still unclear.

Regional and state-wide passenger rail connections are provided by Amtrak, with its twice-a-day stop at Chico. Butte County began receiving Amtrak services after spring, 1982, when the re-routing of the Coast Starlight (Seattle to Los Angeles) included more heavily populated east side Sacramento Valley communities including Chico, Marysville, Roseville and Sacramento. The effect of the re-routing was to increase mid Sacramento Valley patronage by about a third during the first six months.

### 2.3 Transportation Systems Management

Transportation Systems Management (TSM) is a composite term used to define a variety of transportation programs which help to make better use of existing services and facilities. The benefits of TSM are realized through increasing system efficiency while decreasing capital costs. TSM includes such transportation concepts as ridesharing and carpooling, park-and-ride lots, traffic flow improvements and signal synchronization, and bimodal integration and route scheduling between public transit, ridesharing and urban bicycle programs.

Caltrans has also constructed a limited number of bus turnouts and shelters on state highways in Butte County urban areas. The cities of Butte County have been active, as the need arises with traffic flow improvements and signal synchronization.

Formal park-and-ride lots have been constructed on State Route 70 at Grand Avenue in Oroville (30 parking places and 4 bike lockers) and on State Route 32 at Fir Street in Chico (44 parking places and 8 bike lockers). Also, Caltrans has identified eleven informal park-and-ride lots along or near state highways in the County, as indicated in the following table:

Table 2

#### Informal Park-and-Ride Lots on State Highways in Butte County

1. SR 70 at Robinson's Center (southwest side).
2. SR 70 at Palermo Road (gravelled lot on southeast corner).
3. SR 70 at Oroville Dam Blvd. (in front of Caltrans Maintenance Station).
4. SR 70 at Montgomery Street (on gravelled shoulder).
5. SR 70 at SR 149 (on gravelled shoulder).
6. SR 99 at Edgars Slough and Skyway (on gravelled shoulder).
7. SR 99 at Pentz-Durham Road (on soft shoulder).
8. SR 99 at SR 149 (parking on gravel).
9. SR 99 at SR 162 (parking on gravel).
10. SR 32 at Bartlett (along street and in adjacent lot at Shell Station).
11. SR 99 at East Park Ave. (parking along street).

Source: Park and Ride Locations within District 03, Caltrans, January 22, 1981.

Caltrans' ridesharing program has consisted of ridesharing matching efforts at Chico State and at Butte College for students and faculty. Butte County has not been formally involved with ridesharing matching, to date.

Two bills were passed by the state legislature in 1981-82 which are important to ridesharing:

SB 321 - The bill creates financial incentives for employees to rideshare while reducing the cost to employers. The bill includes employer tax credits, accelerated depreciation and other tax benefits to employers providing ridesharing inducements to their employees.

SB 320 - This bill will allocate funds to the Butte County Association of Governments for the purpose of implementing ridesharing programs. The first allocation was expected to occur in March, 1983, and annual allocations will be made each July 1st through 1987. The estimated 1983 allocation to Butte County was \$22,194, but has been cut in the Governor's 1983-84 state budget.

## 2.4 Bicycle Ridership

Bicycle ridership offers citizens one of the cheapest and most efficient forms of transportation, particularly within urban areas. Bicycle ridership for work and school commuting, general utility, and recreation has increased significantly throughout the County during the last decade.

Bicycle ridership rates in the Chico urban area are by far the greatest in the County due to the role of Chico State and the urban area's more compacted and young population. The City of Chico has designated specific streets as bicycle routes and recently established improved on-street bicycle parking facilities in its downtown area. It is estimated that average daily bicycle ridership constitutes 4 to 8 percent of the total trips in the Chico urban area during the six month (May through October) warm season.

The Town of Paradise and the Cities of Oroville and Chico have recently completed bicycle plans. At present, there are no rural bicycle programs in Butte County.

For planning purposes, bicycle routes are categorized into three classifications. Class I bike routes involve lanes where the right-of-way is physically separated from competing motor vehicle and pedestrian conflicts. Class II bike routes involve the marking and striping of separate bike lanes along existing streets. Class III routes involve the signing and assigning of local and collector streets as bike routes.



## 2.5 Pedestrian Access

Separation of pedestrian and vehicle traffic is required by safety considerations, but often the result is to reduce pedestrian access and mobility in lieu of vehicle traffic. Issues related to pedestrian access are almost exclusively found in urban situations and pedestrian planning usually occurs on a case-by-case basis while conforming to general development standards set by the public agency of jurisdiction.

Most often, pedestrian access is relegated to the issue of providing sidewalk construction along city streets. Pedestrian considerations are also important site planning concerns when developing large commercial and employment centers. The issue of pedestrian corridors for intracity recreational opportunities is one that has emerged recently in the Town of Paradise, in that a system of foot trails are called for in the community's general plan.(1) Similar long-term opportunities exist along water courses in the Chico urban area such as Little Chico Creek and Lindo Channel and the Feather River around Oroville.

## 2.6 Aviation

Aviation serves three purposes in a region like Butte County. First, commercial service provides fast and easy access to other regions by providing connection to major air carriers at metropolitan airports. Second, general aviation facilities meet the needs of private aircraft users for commercial and recreational uses. Third, aircraft are an indispensable tool for the County's agricultural sector.

The major airports in Butte County are owned and operated by city government, including the Chico Municipal Airport and the Oroville Airport. Development and maintenance of these two airports are the responsibility of their respective city governments and airport land use plans are required for each facility.

The Chico airport is classified as a basic transport airport (including capacity for scheduled commercial service) and has a lighted and paved parallel runway with a precision electronic approach system. (2) The Oroville airport is classified as a general utility airport and has a lighted and paved single and cross-wind runway. Two privately owned general aviation airports are located in Butte County and include Ranchero airport west of Chico, and Paradise Sky airport southwest of the Town of Paradise. Both of these private airports are classified as public use airports and consist of a single paved runway without electronic approach systems.

In 1980, 149 aircraft were based at the Chico airport, 55 at Oroville, 28 at Ranchero, and 23 at Paradise Sky.(3) The Chico airport recorded approximately 80,000 takeoffs and landings in 1981.

As Butte County's only scheduled commercial passenger airport, the Chico airport has been subject to a number of recent service changes because of national deregulation of the commercial airline industry and the 1981 air traffic controllers strike. Airline deregulation left Chico without a major commuter air carrier as

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(1) Town of Paradise General Plan, 1982

(2) The California Aviation System Plan, Volume II, May, 1981, App. C

(3) Ibid, Appendix C



larger airlines concentrated the focus of their service in larger metropolitan areas. Chico is now served by two smaller commuter airlines; West Air and Pacific Express. The air traffic controllers strike forced closing of the Chico control tower in 1981 and it has not been reopened to date.

State law requires airport plans, including for airport land use and clear zones, to be developed for general purpose airports such as Chico and Oroville. These plans are to be adopted by the County's Airport Land Use Commission (ALUC), which is the County Planning Commission. The City of Chico developed an airport environs plan for Chico Municipal Airport in 1978 and a similar plan for the Oroville airport is now being developed. Butte County presently does not exercise controls on the location, development, and use of private airstrips and landing fields, although a use permit is required. Controls should be developed to ensure that private airstrips do not permanently preclude use of prime farmlands, that they are outside of the flight paths of existing airports, and that they do not provide a hazard or annoyance for neighboring areas.

## 2.7 Commercial Goods Transportation

Trucking, rail, and gas and electrical utility transmission corridors constitute the bulk of the transportation of commercial goods transported in and through the Butte County area.

### 2.71 Trucking

It is estimated that trucking accounts for approximately 10 percent of the average daily traffic on Butte County's major state highway network.

### 2.72 Railroads

There are presently three railroads serving the Butte County area, including Southern Pacific Railroad, Western Pacific Railroad, and Sacramento Northern Railroad.(1) Both the Southern Pacific and Western Pacific traverse through Butte County near State Routes 99 and 70 respectively, and the Sacramento Northern terminates near the Chico Municipal Airport after serving Durham and points south in Sutter and Yuba Counties (see Figure 3).

Southern Pacific's rail system in Butte County consists of 45.6 miles of main line and 8.8 miles of branch line servicing both through freight and local service to Chico, Gridley, and Oroville. Typical daily operations consist of approximately 10 through freight trains, 3 local freights, and 2 Amtrak passenger trains.

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(1) The Southern Pacific Transportation Company is parent company to the Southern Pacific Railroad. The Union Pacific Railroad Company is parent to both Western Pacific and Sacramento Northern Railroads.



Figure 3  
Railroads and Utility Corridors  
(see jacket)



Western Pacific's railway mileage consists of 54.8 miles of main track with spurs which service Oroville. Recent typical daily operations consist of eight to ten through freight trains which vary considerably in size. Both Southern Pacific and Western Pacific freight shipments have declined recently due to economic conditions.

The Sacramento Northern spur originates in Sutter County to provide local shipping to Durham and Chico. Freight traffic on this line has declined significantly during the last year, primarily due to a shift to local trucking brought about by recent deregulation of that industry.

## 2.73 Gas and Electrical Utility Corridors

The large scale transportation of natural gas and gasoline by pipeline and electricity by transmission lines must be considered in a circulation element.

Pacific Gas and Electric Company (PG&E) provides piped natural gas to all of Butte County's larger urban areas and also to the communities of Durham, Richvale, Palermo, Biggs and to Butte Community College, as shown in Figure 3. Areas of higher population density not served by PG&E include Paradise Pines and Oroville's eastern foothill planning area. Natural gas lines also service several natural gas production fields in western Butte County. The main natural gas line through the Sacramento Valley, which connects the PG&E service area to Canadian gas fields, is located in the western portions of the Valley, west of Interstate 5.

Gasoline is piped into Butte County from the south (from Bay area refineries) to the Chico tank farm near Hagen Lane and the Midway, and is distributed from this point by truck. Southern Pacific Transportation Company is owner of both the gasoline pipeline and tank farm facility.

PG&E, the California Department of Water Resources (DWR), the Western Area Power Administration (WAPA), a branch of the U.S. Department of Energy, and the Oroville Wyandotte Irrigation District (OWID), are each responsible for portions of the major electrical transmission lines that cross through or originate in Butte County.

PG&E operates and maintains the bulk of the transmission line system in Butte County. Nearly all of the electricity passing through or generated in Butte County is routed through PG&E's Table Mountain substation or the smaller Palermo substation (see Figure 3). Major PG&E transmission line corridors in Butte County include two parallel 500 KV lines running from the Tehama



County line in the lower foothills to Table Mountain (servicing the Pit River Project and Pacific Inter Tie), five lines totaling 920 KV running from the Feather River Canyon (Feather River Project) to both Table Mountain and Palermo, and two 115 KV lines which connect the Chico area and Table Mountain. PG&E transmission lines which generally transmit electricity to population centers south of Butte County include three lines totaling 1230 KV from Table Mountain, two 115 KV lines from Palermo and a single 230 KV line from the Rock Creek Substation in the Feather River Canyon.

The DWR operates and maintains three lines from its Lake Oroville Hyatt Powerhouse totaling 690 KV, which lead directly to the nearby Table Mountain substation. The DWR also operates lines from its Thermalito forebay powerhouse to Table Mountain.

The federal WAPA operates and maintains a single 230 KV transmission line system which runs the entire north-south length of Butte County and traverses an area near the break in slope between the Sacramento Valley floor and the foothills. The OWID operates and maintains a 115 KV line from its South Fork Project to Palermo.

## SECTION 3.0

### TRANSPORTATION AND ENERGY

No energy use is more important to Butte County citizens than that for transportation. Nearly all of our business and trade activity somehow depends on the movement of people and goods, and this requires substantial amount of petroleum dependent transportation fuels. In the last decade, with its oil embargos and dramatic energy price increases, there has been a growing public awareness and some adjustment to the role played by energy availability and price. However, we still do not have a clear view of the size or timing of future energy problems, or of future energy costs. The importance of adequate transportation energy supplies cannot be dismissed in transportation planning and, therefore, this section serves to provide information and input which could assist in developing transportation objectives and policies.

In addition to the tremendous importance of easily accessible and relatively low cost transportation fuels to our local economy, the availability of transportation energy is also important in maintaining our sense of mobility. Also, certain land use patterns become more or less attractive as transportation energy cost and supply scenarios change. A past era of low cost petroleum with its nearly unrestrictive supply has dramatically influenced how our present-day land use and transportation patterns developed. It is, therefore, imperative that discussions considering land use and transportation planning consider, as best they can, the implications of energy to our transportation future. The goal of having a future of safe, efficient, and well maintained streets and highways and an adequate public transportation system cannot be separated from transportation energy concerns.

#### 3.1 Energy Use in Transportation

The significance of petroleum to our transportation sector can be appreciated by the following facts:

- . Petroleum accounts for 97 percent of the energy used in California transportation and even more in semi-rural Butte County.
- . The private automobile uses about 60 percent of our total transportation energy budget statewide.(1) Passenger travel consumes about 70 percent of the nation's transportation energy and goods movement accounts for about 25 percent.(2)
- . In California, the transportation sector uses 62 percent of all petroleum used in the state. Petroleum accounts for 61 percent of all energy used in the state.(3) California transportation, alone, consumed 47 percent of the state's net energy supplies in 1981.(4)

- . Annual gasoline consumption in Butte County is estimated to be approximately 60 million gallons.(5) The relative value of this investment is slightly more than that of recent Butte County government budgets.
- . Given the fact that there is no immediate large scale alternative to automobiles for many personal transportation needs and that approximately 80 percent of all statewide person-miles traveled are by auto (even more in Butte County), petroleum will remain the key to fueling the transportation sector throughout the remainder of the century. The potential ramifications of a serious shortfall of petroleum supplies would have severe adverse affects upon personal transportation and upon the economy, as a whole, if prolonged.(6)

### 3.11 Energy and Mobility

Fundamental to the transportation planning process is the need to keep our society's mobility and reduce congestion. Moreover, our current transportation system has deeply affected the physical structure of our society as well as social convention in everything from mores to funerals. The automobile has shaped modern cities, creating suburban environments where personal vehicles are essential for the most basic functions.(7) Citizens prize the sense of personal freedom and mobility offered by the automobile.

Large amounts of personal travel are indispensable and citizens have shown a continued willingness to invest significant amounts of their income in travel. The fraction of each person's disposable income invested in travel has actually increased in recent years and is now estimated to be more than 14 percent, despite significant reductions in gasoline demand since 1978.(8) One particularly interesting feature of statewide travel demand is the increasing use of light duty pick-ups for personal travel.

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- (1) California Energy Commission, 1981 Biennial Report, p. 61.
  - (2) U.S. Congress Committee on Energy and Commerce, Report on Building a Sustainable Future, Vol. 1, April, 1981, p. 130.
  - (3) California Energy Commission, 1981 Biennial Report, Figure 1-1 California Energy Consumption 1979.
  - (4) California Energy Commission, Forecast of California Car and Truck Fuel Demand, January, 1983.
  - (5) Letter from California Board of Equalization to Butte County Planning Department, September, 1982.
  - (6) See Impacts of a 6, 12, 25 and 40 Percent Shortfall in Petroleum Supplies on the U.S. and California Economies, prepared for the California Energy Commission, Larry J. Kimbell, Ph.D, UCLA Business Forecasting Project, January, 1981.
  - (7) U.S. Congress Committee on Energy and Commerce, Report on Building a Sustainable Future, Vol. 1, April, 1981, p. 122.
  - (8) Ibid, p. 132.



A study of national driving habits indicates, as expected, that people in upper income groups use relatively less of their discretionary income on automobiles than people with low incomes.(1) Higher fuel prices will place a disproportionate burden on low income people. This group uses a much higher percentage of its income for transportation energy than any other income level. Unless properly mitigated, this inequity could compound a multi-decade trend of decreased mobility for the poor, elderly, and physically handicapped driving in and between urban areas. As with most social welfare issues, there are no easy or clear solutions to these transportation hardships. Butte County's response to these problems currently involves low income transportation assistant grants, dial-a-ride services for the elderly and physically handicapped, and subsidized bus services.

### 3.2 Efficiency and Conservation Aspects

As mentioned in previous sections, Butte County's street and highway system represents an enormous long-term public investment. However, putting this investment to good use in the future by ensuring the freedom of mobility which low-cost transportation has provided for many years will require skillful use of many efficiency and conservation technologies that are already in hand. Conservation is a necessary component to the efficient utilization of the enormous investment contained in our current transportation system, both publicly and privately. The immediate and cheapest opportunities to maintain mobility while reducing energy use is through conservation. In contrast, it is clear that rising fuel prices are always most harmful where efficiency is lowest. This plan makes the basic assumption that citizens will respond favorably to market demands and incentives that promote increased automobile efficiency and transportation fuel conservation, if given the opportunity, during the planning period. This assumption is very important to many Butte County residents because of the higher rate of automobile dependency required in semi-rural regions.

#### 3.21 Automobile Efficiency and Fuel Demand

Increasing automobile efficiency has had a substantial effect on reducing the total amount of gasoline consumed since 1978. The public has been both driving less and buying more efficient vehicles that use less gasoline. To further illustrate; a typical 1981 model car was 61 percent more fuel efficient and produced one-tenth the pollution of the typical 1974 model auto.(2)

Federal law currently requires vehicle manufacturers to produce automobiles and light trucks in compliance with an industry-wide

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(1) U.S. Congress Committee on Energy and Commerce, Report on Building a Sustainable Future, Vol. 1, April, 1981, p. 130-132.

(2) California Energy Commission, 1981 Biennial Report, p. 207.

schedule of gradually increasing annual Corporate Average Fuel Economy (CAFE) standards established by the U. S. Department of Transportation. The CAFE standards for automobiles are to culminate in a corporate average fuel economy of at least 27.5 miles per gallon (mpg) in 1985. It is entirely possible to extend fuel and consumer savings by developing further programs for vehicle efficiency to at least 40 mpg by 1995. Butte County and the area's federal and state representatives should support such programs, as to the long-term local benefit gained from vehicle efficiency programs. Many vehicles exceeding 40 mpg efficiency are already on the market and certain low cost light weight automobiles yet to be marketed in the United States exceed rates of 60 mpg.(1)

The potential consumer savings due to increased fuel efficiency standards is further underscored by the fact that gasoline savings of about 20 percent are typical when autos are driven at 55 miles per hour (mph) instead of 70 mph.(2)

At present, it appears that a shift to most types of mass transit systems (with the exception of van and car pools) will not result in major energy savings.(3) The objectives of public transit programs should be to assure the continued mobility of transportation disadvantaged persons and to serve the need for basic urban and intercity commuter needs.

### 3.22 Extending Highway Capacity Through Transportation Efficiency

There are a number of techniques for potentially increasing a transportation system's localized street and highway capacity without resorting to extensive roadway expansion. Together, these techniques apply transportation system management (TSM), and generally require little or no increase in local government expenditures while providing an increase in traffic capacity, locally. In addition to the potential to increase local traffic capacity, TSM techniques usually provide small increases in transportation fuel efficiency. The following are a few of the TSM techniques available for use by Butte County and other local governments:

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- (1) An example of such light weight automobiles would be Honda Motor Company's 4-passenger "Honda City" model which is presently blocked for sale in the U.S. by voluntary auto import restrictions.
  - (2) It should be noted that gasoline costs account for about 25 percent of the cost of running an automobile. As expected, this percentage generally increases with increasing weight of similar model year's autos.
  - (3) U.S. Congress Committee on Energy and Commerce, Report on Building a Sustainable Future, Vol. 1, April, 1982, p. 128.



- . Integration of routes and schedules of different transportation modes, including for public transit, ridesharing, park and ride lots, and urban area bicycle programs.
- . Improve roadway design and the ways it is used. Examples include better roadway grading, separation of competing traffic modes where required for safety purposes, reducing traffic friction in areas of heavy strip commercial development, and providing extended center turning lanes in commercial strips.
- . Expand public transportation to meet growth demands. Transit growth could represent a capacity expansion which could absorb part of the expected additional travel demand. Also, reducing need for travel through land use planning tools could represent a similar increase in capacity.(1)
- . Improvement in traffic control systems and synchronization. An average car achieves optimum energy efficiency by maintaining a constant speed between 35 and 45 mph. Typical city street traffic, however, is characterized by frequent stopping and starting, which reduces energy efficiency and increases vehicle emission rates.(2)
- . Individuals can also help to increase city street capacity by planning their auto trips as efficiently as possible.

### 3.3 Transportation and Energy Related Assumptions

Transportation, energy, and economic issues are all linked. Funding for the Butte County's transportation system must give greater consideration to energy efficiency than in the past. The following are some of the energy related assumptions that are considered and incorporated into this plan's strategy section.

1. Major increases in travel are predicted in Butte County during the next 15 to 20 years.(3)

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- (1) For an example of how coordinated transit and land use planning can help reduce projected traffic capacity, see the Rancho Arroyo Specific Plan, Chico, May, 1982.
  - (2) California Energy Commission, 1981 Biennial Report, p. 65.
  - (3) Vehicle miles traveled (VMT) are forecasted to increase between 50 and 60 percent in Butte County by year 2000. Truck VMT will increase slightly faster than for automobiles.

2. The price of gasoline will rise by an average annual rate of 3 percent greater than the inflation rate.(1) Federal, state, and local taxes on gasoline to pay for maintaining and constructing our transportation system will increase substantially during the planning period.
3. Gasoline demand will continue to decline slowly during the planning period, despite more vehicles and increased vehicle miles traveled (VMT) in Butte County.(2) Increases in vehicle fuel efficiency and the efficiency of personal transportation choices and modes will be chiefly responsible for declining gasoline demand. It is assumed that the automobile fleet will average at least 40 mpg by the late 1990's.
4. The average weight of passenger vehicles will continue to decline during the planning period.
5. It is assumed that it takes about ten years for a rise in the price of oil to have its full effect on improving energy efficiency in business and for personal use.
6. Periods of energy price plateaus will not be a disincentive to further energy conservation, although the rate of conservation will slow during these periods.
7. The transportation sector will continue to be highly dependent on petroleum throughout the planning period. Oil will be increasingly used for only those purposes to which it is best suited.

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(1) California Energy Commission, Forecast of California Car and Truck Fuel Demand, Chapter I: Summary, January, 1983, p. 1.

(2) Statewide gasoline demand is forecasted to decline approximately one percent per year during most of the 1980's. Additional declines in gasoline demand to year 2000 will depend on the extent to which existing fuel economy improvement technologies are implemented.

## SECTION 4.0

### FINANCING ISSUES RELATED TO BUTTE COUNTY'S TRANSPORTATION SYSTEM

The following section deals with financial issues affecting Butte County's transportation planning efforts over the short and long-term course. This section should be used in conjunction with background discussions found in sections on existing and future transportation needs and road classifications and standards.

#### 4.1 Past and Present Financing

Historically, Butte County's transportation system financing has come from a mix of federal, state, and local government revenue sources. However, beginning with 1) the 1978 passage of Proposition 13, which significantly reduced property tax revenues for California's local governments, and followed by 2) a trend of reduced federal and state road designated funds caused by a slowed economy and significant declines in gasoline usage since 1978, coupled with 3) rapidly inflated costs of road maintenance and construction, Butte County and its cities have been faced with increasing revenue constraints which have negatively impacted traditional rates of road maintenance and construction.<sup>(1)</sup> In Butte County's case, budget constraints have lead to the complete elimination of the use of non-restricted road monies for road maintenance and improvement projects. In fiscal year FY 1982/83 motor vehicle in-lieu funds were eliminated from funding Butte County road operations for the first time, as this revenue source was needed elsewhere to fund County operations. Also, federal road maintenance and construction apportionments for both Butte County's urban and rural areas have declined slowly during the last several years. This overall decline in revenue for local transportation projects has led to a sharp slowdown of needed Butte County road maintenance projects and a near halt to any traditionally funded new road construction in the near future by the County.

As a result of declining revenues, Butte County's FY 1982/83 road maintenance and construction was funded exclusively from road specified sources, this for the first time in recent years. Two revenue sources, the highway users (gasoline) tax and Local Transportation Fund from sales tax, accounted for approximately 77 percent of the County's road maintenance and construction revenue. The following table shows the FY 1982/83 revenue breakdown for the County Public Works Department's road maintenance and construction operations.

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(1) Inflation in highway construction and maintenance costs has risen approximately 250 percent in 10 years. Gas tax revenue had increased a mere 24 percent in the same period, prior to 1983.

Table 3

Estimated Butte County Road Maintenance and Construction Revenue  
FY 1982/83

<u>Source</u>	<u>Amount</u>	<u>% of total</u>
Highway Users	\$2,071,693(1)	44.7
Forest Reserve	215,000	4.6
HUD Funds	89,600	1.9
TDA Funds	1,490,861(2)	32.2
Misc. Sales	18,000	--
Road Permits	230	--
Interest	30,000	0.7
Fines and Forfeitures	270,000	5.8
<u>FAS</u>	<u>450,000</u>	<u>9.7</u>
Total	4,635,384	100.0

(1) Includes \$300,000 of SE 215 funds.

(2) Includes carryover from previous fiscal year.



The only revenue category expecting any significant increase in the near future is the highway users tax; this due to new state (SB 215) and federal taxes on gasoline during 1983. Future increases in TDA funding and fines and forfeitures are expected to parallel population growth and inflation rates, so the net gain to the County's road program revenue will be minimal. Future federal FAS revenues are extremely difficult to forecast, in that allocations will depend largely on future federal budgets, nationwide road and transit priorities, and the future state of the economy and revenues from gasoline sales. Forest reserve revenue, which result from timber and recreation revenues from Lassen and Plumas National Forests in Butte County, are expected to continue declining slightly as logging activity in the area slowly declines. HUD (U.S. Housing and Urban Development) grants, for road reconstruction in blighted areas, are expected to play a minor role in the overall future of Butte County's road maintenance program, as are federal bridge rehabilitation funds. The above discussion and projection of poor prospects for substantially increased road revenues to balance Butte County's current road maintenance needs leads to a forecast of future years of increasing road maintenance deficits in the County, as discussed later in this section.

Public and specialized transportation system funding for Butte County and its cities had historically come from the Transportation Development Act (TDA, SB-325) which has been in existence since 1972. Beginning in 1979, funds become available under the State Transit Assistance Program (STA).

The public transit systems in Butte County use a mix of TDA and STA funds for their operations. Chico Area Transit System buses and their ancillary equipment were purchased utilizing an UMTA (Section 18) grant in conjunction with local transit funds. During FY 1982/83 approximately \$548,600 of transit funding was utilized to operate public transportation programs by Butte County.

Under the 1982 Federal Highway Improvement Act, UMTA Section 9 funds are available for public transportation systems that serve an urbanized area of 50,000 or more. Section 9 funds are to be used for capital improvements and operating costs for urban public transit development. Recent annual appropriations for the Chico urban area have been in the range of \$400,00+. UMTA Section 18 monies are now utilized for public transportation systems and services outside of urban areas. Section 18 has helped to finance capital improvements and operating costs of BCT and OATS. Section 18 is also used for other demand oriented transit services such as dial-a-ride programs.

The 1983 increase in the federal gasoline tax will benefit urban public transportation systems such as the Chico Area Transit System, by ensuring a stable source of federal transit funds in future years.



Funding of bicycle facilities and planning can come from a variety of local, state or federal sources. Local street and road revenues and general revenues can be utilized. The state Bike Lane Account is reserved by Caltrans for grants to local governments for development of bike lanes and bike ways. It should be noted that TDA and FAU monies can also be used for bike lanes and bicycle planning.

#### 4.2 Cost Factors in Maintaining the County Road System

The understanding of how different road maintenance and construction operations vary with respect to costs is important when considering and evaluating different objectives, policies and programs contained in the Transportation Element. Roadway costs discussed below are generalized and based on 1982 dollar estimates.(1)

Butte County maintains approximately 1377 miles of roads which average approximately \$50,000 in value per mile. This would place the 1982 value of Butte County's roadways at approximately \$69 million. The estimated value of state highways, streets in city jurisdictions, and private roadways are not included in this figure. The per mile value of the state highways is considerably higher than for Butte County roadways because of much higher average design standards and maintenance requirements. Slightly over 800 miles of Butte County maintained roadways are paved, while the remainder are dirt or gravel.

New roadway construction costs, including for substantial reconstruction of existing roads, average approximately \$350,000 per mile for a standard width 2-lane road. This average cost varies greatly with terrain. It is estimated that a new 2-lane road on the valley floor will cost an average of \$100,000 per mile; while the same roadway will cost approximately \$250,000 per mile in the foothill areas and approximately \$500,000 per mile in mountainous areas. This suggests a tremendous cost is involved in foothill and particularly, mountainous area roadway construction; as much as five times more than valley floor roadway construction costs. Higher foothill and mountain road construction costs result largely from increased surveying and cut and fill costs. Oroville-Quincy Highway, Forbestown Road, and Cohasset Road are examples of higher cost-per-mile roads in Butte County's road system.

The cost of asphaltting for new roads averages close to one dollar per square foot, however, these actual costs are extremely variable due to variable terrain and other engineering factors.

Adequate road maintenance is important in keeping the value of Butte County's roadway investment over the long-term. However, in FY 1982/83, an average of approximately \$1600 per mile was

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(1) All cited roadway costs are rough estimates obtained from various discussions with the Butte County Public Works Department and are furnished for general planning purposes, only.

budgeted for roadway maintenance on County roads. Approximately double this amount, or nearly \$3000 per average mile is needed to keep pace with annual road maintenance needs. Inflation of road maintenance costs and reduced roadway budgets have led to increasing road maintenance deficits since about 1978, for Butte County.

A newly constructed paved road should be seal coated no later than 10 to 15 years after its construction, and sooner, if possible. Seal coats, which cost approximately \$8000 per average mile, are now typically applied only about every 20 years, due to financing constraints. The above shortfall in seal coat maintenance cycles parallels the road maintenance deficit just suggested.

Assuming that the FY 1982/83 level of road revenue remains constant with future inflation rates while road maintenance needs remain the same, the accumulated road maintenance deficit for Butte County would be approximately \$19.5 million (in 1982 dollars) in ten years.(1) The implication of the present and future road maintenance deficit is that the County's road maintenance program is going to be increasingly forced to set priorities regarding which roads are to be adequately maintained and which roads are going to be allowed to deteriorate and, on occasion, be converted to gravel.

Other road maintenance costs incurred by the County include for road striping and signing, roadway reflective markers, road vandalism, snow plowing, traffic signals, road drainage, and torts. Yearly road striping maintenance costs about \$50,000. The County maintains about 10,000 roadway signs, which have an average value of about \$100. In 1981, about \$20,000 in vandalism occurred to road signs. Reflective pavement markers involve an approximate \$200,000 long-term investment below the snowline while in FY 1982/83, \$143,000 was spent for snowplowing on County roads. New traffic signals cost about \$80,000 each. Road drainage problems in certain urban areas such as Palermo, Thermalito, the Avenues in Chico, and Chapmantown add to the County's maintenance costs.

#### 4.3 Future Road and Highway Financing

New state and federal taxes on gasoline are expected to increase Butte County's road revenues, however, not nearly to the extent for which County residents pay gasoline taxes. The County is expected to continue as a donor county with regard to balancing gasoline taxes and revenue. This will be particularly true in the poor return of federal gasoline taxes back to Butte County, as the bulk of this tax will be allocated to other areas, particularly large metropolitan areas where the national need is perceived to be greatest.

(1) The amount of \$19.5 million should be used generally, and only as a method to illustrate the significance of Butte County's potential for an accumulated road maintenance budget deficit.

Based on the assumption that present taxable gasoline sales in Butte County amount to near 60 million gallons per year, the new two cent state gasoline tax will increase Butte County and its five cities' road revenue by a countywide total of \$600,000 per year, per the formula in SB 215 of 1981. The remaining \$600,000 collected by SB 215 will be used by the state where it perceives the greatest need.

However, prospects for a fair return of new five cent federal gasoline tax revenues to Butte County seems poor. Based on current rates of gasoline consumption, all of Butte County would pay about \$3.0 million in new federal gasoline taxes yearly. However, the 1982 federal gas tax legislation did not authorize increased funding levels for FAU or FAS designated roads, thus no increase in federal funding for these two important road categories in Butte County.(1) Most of the new federal gas tax road allocation has been earmarked for interstate and state primary highways (FAP), which will benefit only the state highways in Butte County. It would appear that the new federal gas tax will increase the rate at which Butte County is a donor gas tax county, as new federal gas taxes collected in Butte County are spent elsewhere. The likelihood of equalizing or reducing Butte County's donor status appears poor, as it would take additional federal legislation to remedy this problem.

From the above discussion it is concluded that the prospects for continued long-term and increasing road maintenance deficits appears likely for Butte County unless new revenue sources are developed by the County over the short and long run. Several road revenue generating techniques are currently available, including a local Butte County gasoline tax, fees on new developments to pay for increased road maintenance and construction that they will generate, and assessment districts to pay for new road construction related to newly developing areas.

Butte County is authorized by SB 215 of 1981 to charge a per gallon tax on gasoline sold within the County in order to increase road maintenance revenue. Butte County and its five cities would have to agree on how to apportion (usually by population) such a local gas tax and two-thirds countywide voter approval would be needed. If Butte County were to set a two cent per gallon tax on gasoline, the County and its cities could annually divide approximately \$1.2 million for local road purposes. To date, no California county has adopted a local gasoline tax, and voters have overwhelmingly rejected it when placed on the ballot.

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(1) The federal Highway Improvement Act of 1982 retained current levels of FAU and FAS funding.



Fees on new developments to pay for increased road maintenance and construction that they will generate and assessment districts to pay for new road construction related to newly developing areas are two revenue generating mechanisms that appear most equitable and easy to adopt. Both the off-site development fee and road assessment district concept encompass a pay-as-you-go strategy for new development and, if applied uniformly, could allow existing County road revenues to be focused exclusively on maintenance of existing roadways. The combined implementation of these two financing mechanisms could help to reduce the County's road maintenance deficit in the future. Other nearby counties which utilize road development fees include; Nevada County, which has implemented a countywide program that charges fees according to the road needs found in eight planning sectors in the county, and; El Dorado County, which has implemented a program that assesses and charges road development fees for development projects which will have large off-site traffic impacts.

Two other potential revenue sources for road maintenance could possibly be implemented over the long-term, one at the local level and another at the state level. Locally, establishment of roadway drainage assessment districts in previously mentioned urban problem areas could help extend road maintenance monies while providing a solution to these local urban drainage problems.

Also, truck weight-distance fee schedules should be reformed to pay a fair cost of roadway and highway damage.(1) Heavy duty trucks are cause for most of the road damage and, in fact, if fees were proportioned to use-related road wear and vehicle type, truck fees would pay nearly all of the road maintenance cost.(2) The opposing

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(1) Present highway user taxes, including the truck-related taxes added in the federal Highway Improvement Act of 1982 (new federal gas tax), favor heavy trucks. Truck user charges do not recover the costs heavy truck traffic imposes on the highway system. Numerous highway cost allocation studies have confirmed that heavy trucks underpay. Even with the new federal gas tax, heavy trucks will still be paying about 70 percent of their full highway cost responsibility. Also, the heavier trucks allowed by the 1982 federal gas tax bill will, on the average, increase pavement damage by 15 percent.

(2) Pavement deterioration is the most important cost heavy trucks impose on the highways. Trucks over 50,000 pounds cause roughly 85 percent of the use-related damage to the nation's highways. Pavement stress increases sharply with increased axle loads: a five-axle, 80,000 pound truck causes about 600 percent more stress than the same truck loaded to 50,000 pounds. One 80,000 pound truck does the same damage as about 9,600 automobiles.

argument suggests that such truck weight fees would be passed on to the consumer who would end up paying for truck caused road damage, anyway. Any change in truck weight fee schedules would have to occur at the state and federal level.

The possibility of utilizing community facilities districts for generating road construction revenues for newly developed areas is not yet clear. Legislation enabling community facilities districts, which was signed by the Governor in 1982, does not clearly specify road construction as a fundable service. Also, large questions remain as to how much money the County can afford to spend on "advanced" financing of community facilities districts and what affect such financing would have on the County's future bond and credit ratings.

#### 4.4 Implications of Future Road and Highway Financing Shortfalls

While public transit systems in Burke County appear to have adequate funding through the planning period, road and highway financing for maintenance and construction will be facing continued revenue shortfalls. These anticipated shortfalls imply the need to develop road maintenance and construction strategies which help to extend road designated revenues while maintaining basic road service levels. Some strategies that should be considered during the planning period include the following:

- . If reduced levels of road maintenance continue, there will be increasing need to formally allocate reduced road maintenance cycles throughout the County, particularly in rural areas.
- . Some rural roads will have to be converted to gravel or dirt, over time, if the road maintenance deficit continues to increase, over time.
- . Other road maintenance and construction cost reductions will require increased engineering economy. Such techniques could include keeping rural roads informal and urban street widths as narrow as practically possible.
- . The issue of "implied subsidies" with regard to road maintenance and construction will become increasingly important, over time. The issue of how to equitably allocate road revenue resources between more expensive foothill and mountain roads and valley floor roads, snowplowing programs, and between large development projects, particularly for large rural subdivisions, and their off-site traffic impacts will require increasing attention as road maintenance demands increase, over time.



- . A system of off-site development fees and assessment district financing to pay for the traffic impacts caused by new development in the county will need to be increasingly considered, particularly if road maintenance programs continue to fall behind their needs.
- . In certain urban situations, well planned public transportation may help to marginally reduce street congestion, thus creating a slight increase in street capacity. This opportunity will have to be examined case-by-case for each transit system, as the possibilities arise. Also, subdivision design criteria which increases opportunities for transit patronage should be incorporated into urban area transit planning programs.
- . With the reduced ability to adequately maintain roads that are currently part of the County's road system, addition of any new roads to the system will only further tax the County's road maintenance abilities.

## SECTION 5.0

### ROAD CLASSIFICATIONS AND STANDARDS

The functional classification of roads and the application of road design standards are key tools to 1) ensuring adequate access and road design for present and future development and 2) setting effective priorities for use of road monies.

Since finances prevent every highway in a functional classification from being developed to optimum design standards, it is necessary to identify the relative importance of each highway segment from a system perspective in order to establish a plan that will maximize the effectiveness of future improvements.

#### 5.1 Functional Highway Classification

Urban and rural streets and highways in Butte County are grouped functionally according to the character of service they are intended to provide. The classification of streets and highways helps to 1) determine the importance of a particular highway segment in relation to the overall network and 2) maintain a balance between the issues of access to land and traffic mobility for various transportation facilities when developing programs for highway improvements. A functional highway classification is also valuable in helping to determine priorities for road and highway maintenance policy. It is necessary to distinguish the functional classification between urban and rural areas, since the services they provide can differ greatly. Urban and rural functional classification characteristics are described by the two tables on the following pages. Cross-section illustrations of functionally classified roads as they relate to Butte County's road improvement standards are shown in Figures 4A and 4B.

Level of Development Priorities - The need to concentrate on essential rather than desirable improvements has lead some public agencies to devise a method of allocating highway improvements and maintenance according to the importance of the highway. The goal has been to define road and highway programs so that the greatest benefits are obtained with a minimum of limited financial resources.

The basic premise of a "level of development" highway maintenance program is that the most important highways should be designed and maintained to the highest possible level to provide the highest level of traffic service, operational safety and efficiency. The least important highways should receive only the improvements necessary to maintain their structural integrity and operational safety. An example of a levels of development program is summarized in Appendix B.

## Table 4

### Functional System Characteristics - Urban Areas

#### Urban Principal Arterial

The principal arterial system should carry the major portion of trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. In addition, significant intra-area travel, such as between central business districts and outlying residential areas, between major inner city communities or between major suburban centers should be served by this class of facilities.

#### Urban Minor Arterial Street

The minor arterial street system should interconnect with and augment the urban principal arterial system and provide service to trips of moderate length at a somewhat lower level of travel mobility than major arterials.

#### Urban Collector Street

The collector street system differs from the arterial systems in that facilities on the collector system may penetrate neighborhoods, distributing trips from the arterials through the area to the ultimate destination which may be on a local or collector street.

#### Urban Local Street

Local streets are limited to serving lots fronting such streets and should have a curvilinear and/or discontinuous alignment, such as loops and cul-de-sacs, so as to discourage through traffic, but carry traffic conveniently and as directly as possible to collector streets.

#### Commercial and Industrial Streets

These streets are designed to serve employment, business, and trucking traffic in urban commercial and industrial areas.



Table 5

Functional System Characteristics - Rural Areas

Rural Principal Arterial

The rural principal arterial system will serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel. They generally serve urban areas of 50,000 and over population and a large majority of those with population of 25,000 and over.

Rural Minor Arterial

The rural minor arterial road system links cities and larger towns, and will be spaced at such intervals, consistent with population density, so that all developed areas of the County are within a reasonable distance of an arterial highway. Minor arterials provide service to corridors with trip lengths and travel density greater than those predominantly served by rural collector or local systems. Minor arterials constitute routes whose design should be expected to provide for relatively high overall travel speeds, with minimum interference to through movement.

Rural Collector Road

The rural collector routes generally serve travel which is primarily intracounty rather than of regional or statewide importance and constitutes those routes on which predominant travel distances are shorter than on arterial routes.

Major Collector Road - (1) Provide service to any county seat not on an arterial route, to the larger towns not directly served by the higher systems, and to other traffic generators of equivalent intracounty importance, such as consolidated schools, shipping points, county parks, important mining and agricultural areas, etc.; (2) link these places with nearby larger towns or cities, or with routes of higher classification; and (3) serve the more important intracounty travel corridors.

Minor Collector Road - (1) Be spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road; (2) provide service to the remaining smaller communities; and (3) link the locally important traffic generators with their rural hinterland.

Rural Local Road - Rural local roads serve primarily to provide access to adjacent land and provide service to travel over relatively short distances as compared to collectors or other higher systems.



# STREET STANDARDS

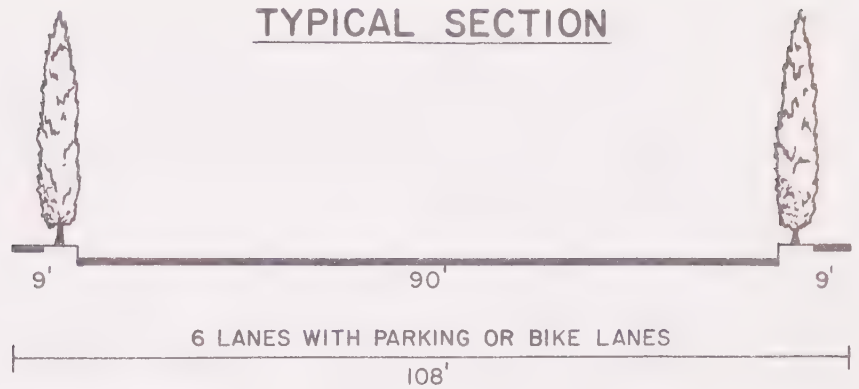
FIGURE 4A

## ARTERIALS

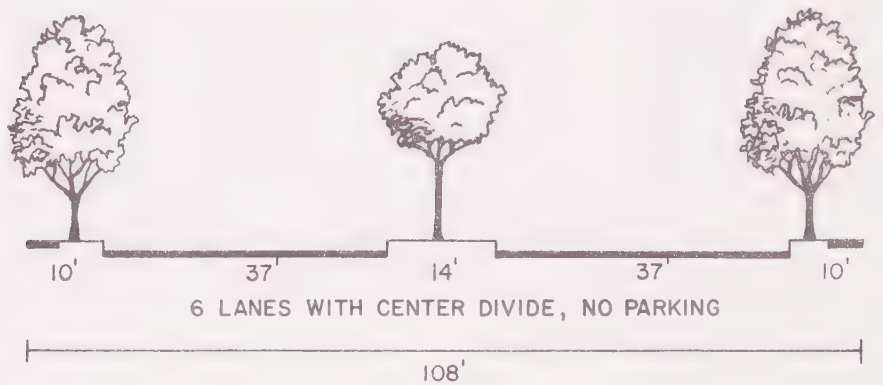
### URBAN ARTERIALS

(IDEALIZED CAPACITY \*)

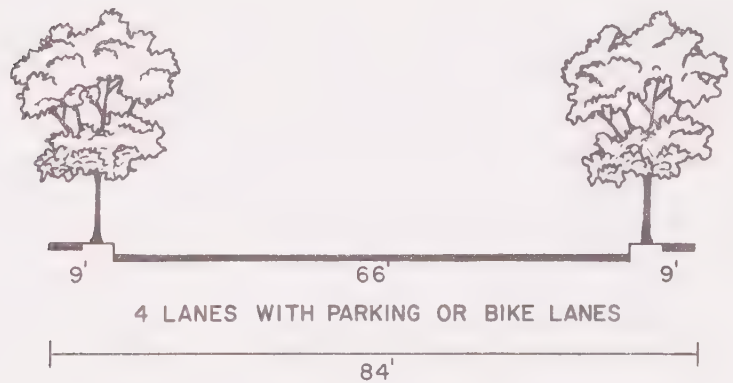
38,400 AADT



38,400 AADT



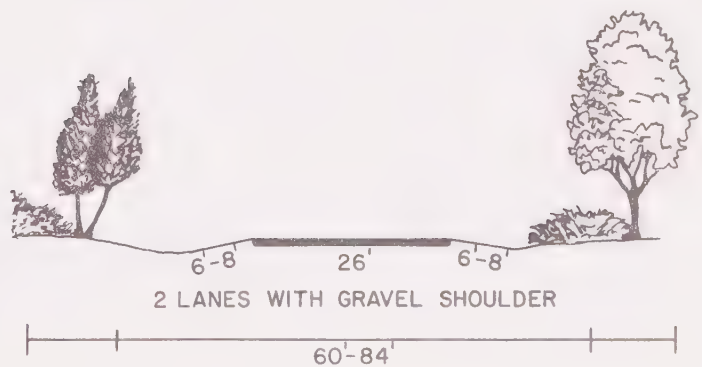
25,600 AADT



### RURAL ARTERIAL

(ALSO 4 LANES WITH 48' OF PAVING)

14,000 AADT



\*IDEAL CONDITIONS - LEVEL OF SERVICE "C"

City standards may vary from what is shown.

# STREET STANDARDS

FIGURE 4B

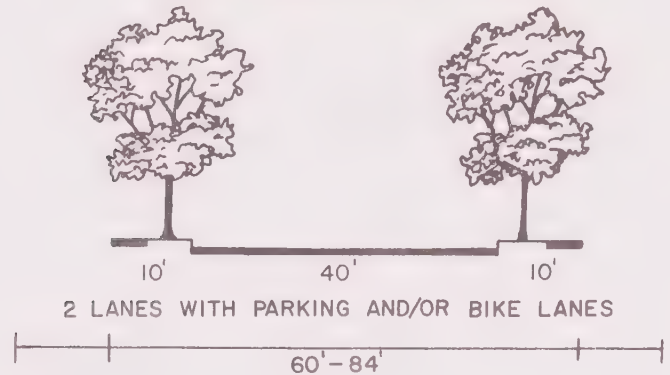
## COLLECTORS

### URBAN COLLECTORS

(IDEALIZED CAPACITY \*)

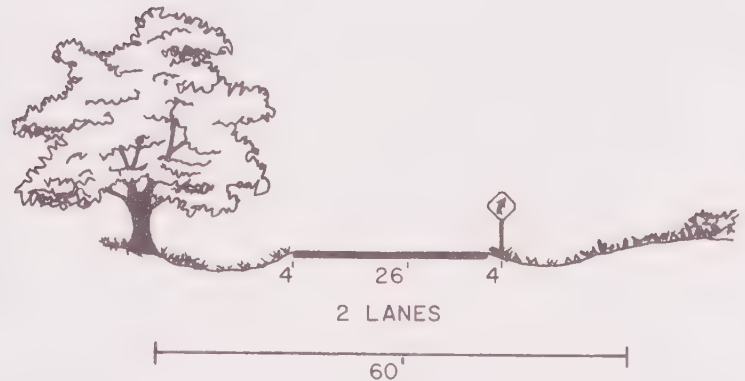
12,800 AADT

### TYPICAL SECTION



### RURAL COLLECTORS

LESS THAN 14,000 AADT

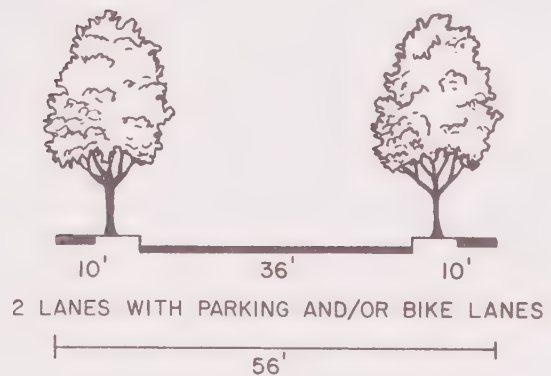


## LOCAL

### LOCAL URBAN STREETS

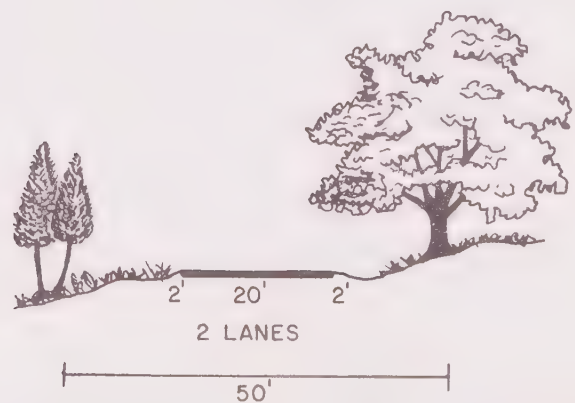
(PAVING WIDTH RANGES FROM 26'-36'  
R/W WIDTH RANGES FROM 46'-60')

LESS THAN 12,000 AADT



### LOCAL RURAL ROADS

(PAVING WIDTH RANGES FROM 20'-26'  
R/W WIDTH RANGES FROM 50'-60')



\*IDEAL CONDITIONS - LEVEL OF SERVICE "C"

## 5.2 Road Standards

Existing Standards - Butte County's road improvement standards define roadway requirements for land divisions, including for subdivisions and parcel splits. A separate set of road standards have been developed for the County's urban, rural valley, and foothill and mountainous areas.

The Butte County Improvement Standards Ordinance indicates by map, the boundaries where each urban area and the foothill-mountainous standard is applied. For urban area subdivisions, Butte County standards are to conform to the incorporated city of each area.

Butte County will maintain only roads which meet County standards, unless otherwise stated in a maintenance or development agreement. Private subdivision roads which are developed to less than County standards are to be maintained as to the conditions of a maintenance agreement between the County and subdivider. The County no longer assumes the maintenance of new roads which consist of gravel or dirt road surfaces. Private roads which are developed without a land division are not subject to Butte County's improvement standards. Road permits are required when a new private road in some way affects the status or characteristics of an existing County maintained road.

### 5.21 Access and Road Standard Issues

There is a need to sort out, sensibly and publicly, which roads should be part of the County road system, and which should be the responsibility of private owners. But this can't be done until the County can afford to adequately maintain the roads already existing in its system. Beyond the main County road network, County residents ultimately must be responsible for building their own access roads, and for maintaining them. New access roads will probably have to be paid for by landowners and those building new homes. Many residents have moved in during the last number of years, and have paid for their access and will not want to pay again for someone else's.

Historically, many old access roads constructed prior to present subdivision map requirements were narrow, poorly graded and substandard, and some of these roads have been taken into the County's road system. The problem now facing the County and local residents, alike, is that the County does not have enough money to either properly maintain or to improve these substandard access roads.

New roads, both private access roads, as well as County roads, need to be built and maintained to last. While a road is new, routine maintenance costs will be moderate and problems few. The problems may come later, if those who are managing the road maintenance don't set aside enough money to cover the full (inflated)



cost of major maintenance, such as resurfacing, which will come due. County or private roads which are built to lower standards are trading present lower costs and easier development for a future road in poorer shape with higher maintenance costs later.

In some cases, County road standards have been flexible for roads already in place, working instead toward improving roads to meet traffic needs rather than to meet a standard. There should be a continuous effort to plan a road system that creates both adequate access and road standards for present and future development.

### Access

To ensure adequate access, the County should require that useable road easements of adequate width be located as to most beneficially serve the circulation needs of all parcels. Also, any right-of-way needed for new roads or expansion of existing roads should be planned and ensured prior to the development that causes the need for additional circulation. Land uses that would preclude the timely development of such right-of-way should be prohibited.

The control of access on the County's main arterial highways is important to maintaining these facilities for the high volumes and traffic speeds which they are intended. Additional driveways, mid-block access points, intersections, and on-street parking all lead to deterioration of a highway's potential traffic capacity and driving convenience, and should be limited along major roads whenever possible.

### Road Standards

To ensure adequate road standards, the County should require that adopted County standards be applied to all subdivision and parcel land divisions, including for private roads. Roads of adequate design and standard will help to ensure that present and future access needs are met, help to reduce overall road maintenance cycles and costs, and help to reduce environmental damage from poorly graded and surfaced roads. A lower road standard may be reasonable for roads which will always serve as individual lot access, only, and will never serve more than a few lots. Also, as a matter of equity, new land divisions should be held responsible for their share of off-site road improvements needed to handle their contribution of increased traffic on existing access roads.

Certain issues involving Butte County's new road standards are related to overall general planning concerns. For example, the County's urban area road improvement standards boundary should ultimately conform closely to each urban area sphere of influence, FAU boundary, and County and respective city urban land use



perimeters and circulation elements. All land division road standards in urban areas should correspond to those of each city. This practice will help to ensure coordination between city and county urban land divisions which could eventually be under the city's jurisdiction.

The County has designated a separate set of land division road standards in an area called mountain-recreational. These standards generally allow reduced roadway widths due to increased costs associated with foothill and mountain road development. However, the present area designated mountain recreational in the County's improvement standards does not include all areas topographically classified as foothill land. The mountain recreational designation should be updated to include all foothill and mountain areas that are not of urban designation.

### Safety

In Butte County's foothill areas, adequate emergency fire access is a very important aspect of circulation planning. Adequate access for emergency escape and attack of wild land fires requires adequate evacuation routes, road width, and bridge strength. The Butte County Fire Department and California Department of Forestry are responsive for fire suppression and management programs in the County's fire hazard areas.

Another road and highway safety issue involves the transportation of hazardous and toxic materials in and through the County. Accidental spills of certain toxic materials present local residents with both immediate hazards and the possibility of longer termed health risks. The County should encourage state and federal government to continue the development and implementation of comprehensive programs which regulate the transportation of toxic and hazardous materials on the County's highways and railroads. Butte County's present improvement standards provide technical and engineering standards for subdivision and parcel land divisions, however, they do not set guidelines for developing a land capability report or grading and drainage requirements for a land division proposal. It is suggested, after review of other comparison counties, that Butte County prepare a land division design manual which provides detailed guidance regarding improvement standards, including for roads.(1) An adequately detailed and clearly worded land division design manual would assist both project applicants, developers, the public, and the County in facilitating the development review process.

### 5.22 Erosion and Roads

As mentioned, the Butte County Conservation Element lists roads as the leading cause of soil erosion in the County and suggests

implementation of measures to control road-related soil erosion, particularly in foothill and mountainous areas. This soil erosion problem exists from both public and private road development. The County's adoption of an erosion control program, including the requirement for erosion control plans to be included as part of its road improvement standards, would begin to mitigate the road-cause erosion problems discussed in the Conservation Element.

### 5.23 Development Agreements

Development agreements are a planning tool that allow for contractual agreement between a project applicant and a public agency, such as Butte County.(2) Generally, development agreements are set in accordance with existing policies, rules, and regulations, and subject to conditions of approval. If used wisely, they will strengthen the public planning process, encourage private participation in comprehensive planning and reduce the economic costs of development.

Development agreements are normally used to ensure the nature, quality, and timing of project improvements, both on and off the project site, including for road standards, future road maintenance, and for site related circulation planning. To date, the County's use of development agreements for road and circulation considerations has been limited. The wider use of the development agreement concept could present case-by-case opportunities for both 1) the County, in terms of planning, maintenance, and standards guarantees, and 2) a project developer, in terms of better planning coordination as well as some potential for reduction of costs.

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(1) See the El Dorado County Land Division Design Manual.

(2) The authority and purpose of development agreements are found in Government Code Sections 65864 through 65869.5.

## SECTION 6.0

### TRANSPORTATION FORECAST

This section presents a forecast of Butte County's transportation requirements to the year 2000 by considering the interrelationship between existing land use and transportation plans and projected population growth. A reasonably accurate projection of future County transportation needs is the single most important analysis in this Element. If future traffic is projected too low, the public convenience and safety could be jeopardized. Traffic projections which overstate future capacity requirements can lead to needless and potentially costly overdesigning of streets and highways at the expense of taxpayers, developers, new home buyers, not to mention the financing capability of local government. Also, overstated traffic forecasts which lead to excessive highway capacities can also become a factor in creating undesirable development pressures which conflict with other elements of the County General Plan.

#### 6.1 Transportation Plans of Affected Jurisdictions

The following subsection summarizes pertinent transportation related policies or programs of governmental agencies affected by the Transportation Element.

#### 6.11 Butte County General Plan

The Butte County General Plan consists of nine separately written elements which must be internally consistent, throughout. Seven of the County's General Plan elements contain statements or references that refer directly to concerns of the Transportation Element and these are summarized in the following discussion.

As mentioned in Section 1.0, a circulation element must be correlated to land use patterns suggested by the Land Use Element. The County's Land Use Element discusses this interrelationship in the following statements:

"The circulation element controls the accessibility to land which affects development patterns, which, in turn, affect traffic volumes and movement patterns."(1)

The Land Use Element also states:

"Taken together, streets, roads, airports, railroads, sidewalks, and other transportation facilities constitute a major land use. The location and growth of communities and the local patterns of development are largely dependent on transportation systems."

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(1) Butte County Land Use Element, pg. 4



"The interrelationship between transportation and land use is exemplified in the California Government Code which requires the correlation of the Circulation Element with the Land Use Element of the General Plan."(1)

Land Use Element policies call for the provision of transportation facilities of all types that will accommodate existing and proposed land use patterns and densities and provide for the "rapid, efficient, comfortable, and safe passage of people and commodities." Land use policy calls for the balancing of residential densities with traffic-carrying capacities of existing and proposed circulation plans.(2) It is also policy to encourage development in and around existing communities with public facilities.(3)

Housing Element - The Housing Element acknowledges the problem of a shortage of funding sources to finance needed street and traffic circulation expansions and improvements.(4) The Element contains as policy that "new housing construction shall be encouraged in locations with reasonable proximity to centers of employment and shopping facilities, and which respect the conservation of energy."(5) Residential density increases are encouraged when there are practical opportunities and development cost savings involved.

Conservation Element - The Conservation Element lists roads as the leading cause of soil erosion in the County. "It would appear, therefore, that roads are a dominant contributing factor to the soil erosion problems, and the full impact of roads on the soil and vegetation in Butte County should be defined and control measures established for road-related soil and vegetative problems so that these problems will be minimized, if not eliminated.(6)

Open Space Element - This element includes the following recommendations that relate to circulation:

- . The County should set large minimum parcel sizes for open space land outside the urban areas indicated on the Land Use Plan Map.(7)
- . Studies should be conducted to determine the urban development capabilities of the foothill and mountain areas.(8)

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(1) Butte County Land Use Element, p. 37

(2) Ibid, p. 34

(3) Ibid, p. 30

(4) Butte County Housing Element, p. I-20

(5) Ibid, p. III-4

(6) Butte County Conservation Element, p. 8.15.

(7) Butte County Open Space Element, p. 14.2

(8) Ibid, p. 14.2



- . The County should not allow in timber-mountain areas, the construction of any roads or buildings which are not necessary to open space uses.(1)

Safety Element - This element is related to circulation planning because of policies related to fire and emergency access and evacuation routes and standards for minimum road widths.

Noise Element - The Noise Element provides noise exposure information intended to guide development of the Land Use and Transportation Elements and noise ordinances. The Element is considered a "source" document to be used when formulating policies for other elements of the General Plan.(2) Transportation related noise sources considered by the element include noise from highways, railroads and airports. Transportation related policies include:(3)

- . Where possible, control the sources of transportation noise to maintain acceptable levels.
- . Special consideration should be given to residential development and other noise-sensitive activities near railroads and highways.
- . Discourage noise sensitive activities near airports.

In addition, the Noise Element calls for adoption of a County noise ordinance.

Scenic Highways Element - This Element outlines the program and procedure for scenic highway corridor evaluation and selection, as well as for scenic highway corridor development controls and protection. Butte County designated scenic highways include State Route 32 east of Forest Ranch, and State Route 70 east of Pentz Road. Although these sections of highway are eligible for State scenic highway designation, the County has not proceeded towards gaining such State designation.

In addition to the above elements of the County General Plan, the Chico Area Land Use Plan (and Environmental Impact Report) also contains references regarding the County's circulation plans and policies for the Chico urban area. It is concluded that significant

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(1) Butte County Open Space Element, p. 14.6  
 (2) Butte County Noise Element, p. 2  
 (3) Ibid, p. 25

traffic impacts will occur from forecasted Chico urban area growth and that a multiple agency and multiple mode Chico area transportation program be combined with a re-examination of land use policy.(1) Furthermore, the Chico area circulation system is "not balanced" or adequate for the full development of land anticipated in the Plan.(2)

Specific mitigation measures are incorporated into the Chico area's plan, including:(3)

- . Continued support of inter and intra-city public transit.
- . Revision of the Butte County Transportation Element.
- . Cooperative County of Butte and City of Chico development of a circulation capital improvements program for the Chico area, including for streets and highways financing and revenue mechanisms.
- . The utilization of holding zones or urban reserves to allow timely development of Chico's future circulation facilities.

An overall assessment of the Oroville area circulation systems is described in the draft Supplemental Environmental Impact Report (dEIR) for the Oroville Land Use Plan of the Butte County General Plan. The supplemental dEIR concluded that street and highway capacity improvements in the proposed Oroville Area Land Use Plan may not be fully mitigated and additional mitigation measures were needed, including:

- . The County and the City of Oroville should cooperatively undertake a land use based traffic study to examine and plan for future circulation needs. The study would identify future thoroughfares and develop a system for financing improvements.
- . Focus urban growth toward the south Oroville area while applying large parcel zoning in the vicinity of Wyman Ravine and south, until circulation and other needs are addressed.
- . Plan for east-west arterial/collectors in the area between Oroville and Palermo which are designed to provide an alternative to Olive Highway (Rt. 162). Limit the number of access points and driveways connecting to major east-west routes in the southern portion of the planning area.

#### 6.12 Cities of Butte County

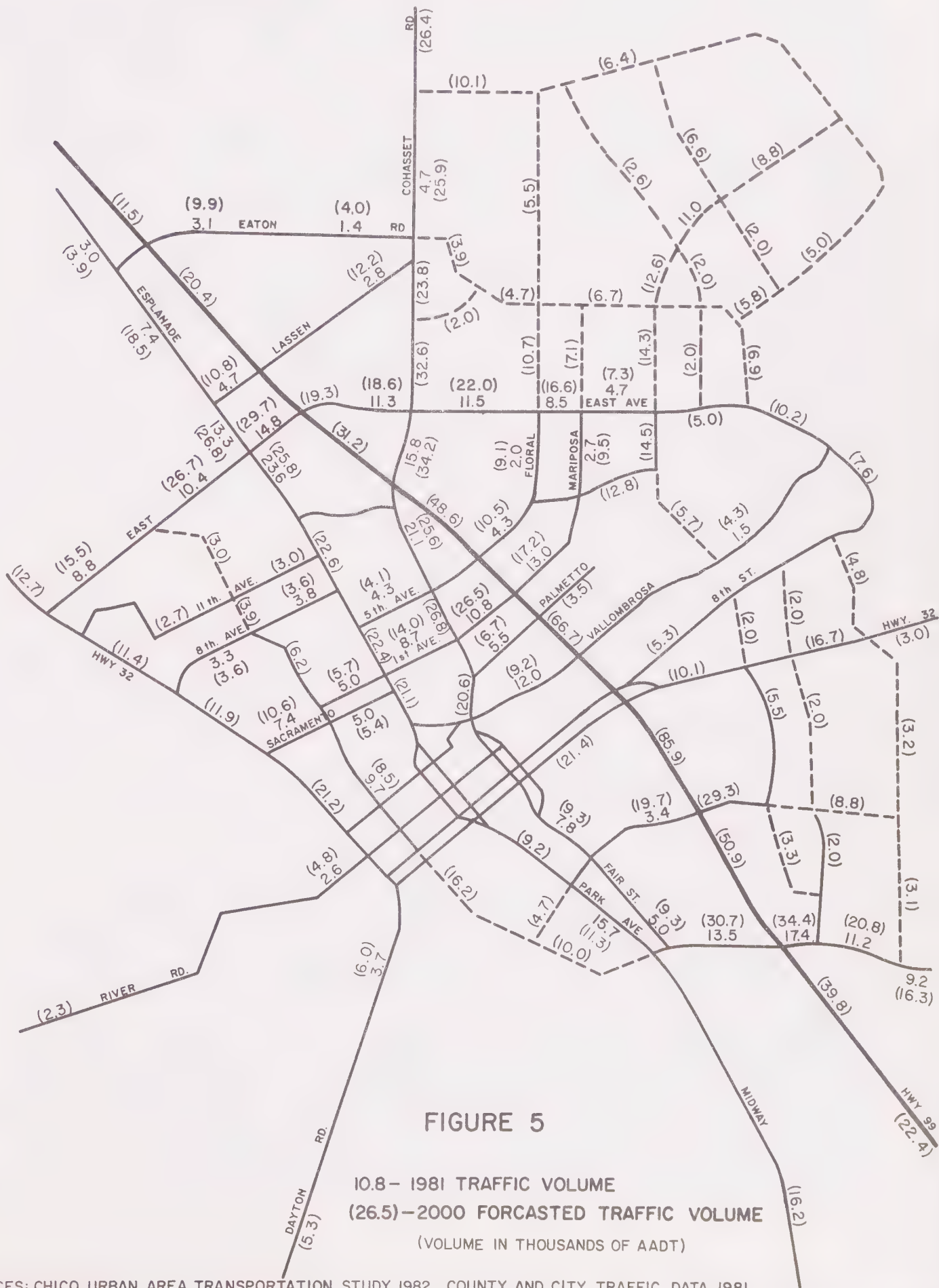
City of Chico - Chico's General Plan was adopted in 1976 with transportation discussion and policies that focused on coordinating a multi-modal transportation system, the scenic enhancement of the highway system, and street and highway noise and safety concerns.

(1) EIR for the Chico Area Land Use Plan - An Amendment to the Butte County General Plan, April, 1982, p. 142.

(2) Ibid, p. 143

(3) Ibid, p. 122

# EXISTING AND FUTURE TRAFFIC VOLUMES CITY OF CHICO





The Chico Urban Area Transportation Study (CATS) was completed in late 1982. The purpose of the CATS was to predict future Chico area traffic levels based on anticipated land use patterns, and identify transportation improvements that would likely be necessary to accommodate Chico's growth. The CATS forecast for future travel demand was modeled for anticipated growth to the year 2000 and for ultimate build-out. The traffic model forecast for the year 2000 used the city's planning area as the study boundary and estimated a population of 102,000. This Chico area population forecast is slightly greater than the County forecast for the same geographic area and date. Figure 5 shows existing and year 2000 (CATS) forecasted traffic volumes on Chico urban area streets.

CATS also proposed a financing plan for Chico street and highway improvements forecasted to year 2000 and for ultimate build-out. The premise of the plan was "that new development should bear the cost of the improvements required to accommodate the additional traffic generated by such development." (1) Two basic financing mechanisms were proposed. "First, assessment districts would be established to finance improvements where the local properties would be the primary beneficiaries of such improvements. This would include situations in which almost all of the traffic using a roadway would be going or coming from adjacent properties." It was calculated that the assessment district financing mechanism could be used to fund almost half of the new street and highway improvements which would occur in Chico's designated growth areas.

The second funding mechanism proposed by the CATS would provide revenue through developer fees on all new development in the Chico urban area so to finance area wide street and highway improvements required because of the new development. In both funding proposals, either the assessment or fee mechanism, the rate was proposed to be based on estimated trip generation for each particular new development. No funding mechanism was proposed for Chico area street maintenance or safety improvements on existing facilities. It should be noted that the above funding mechanism for Chico area streets and highways would require County cooperation, in order to be successful and equitable.

In addition to the transportation forecast and financing plan contained in CATS, there has been concern for how future Chico transportation facilities might adversely affect Bidwell Park. Extreme care should be taken in refining the street and highway system suggested in CATS so as to not adversely affect the amenities of Bidwell Park by future transportation system developments.

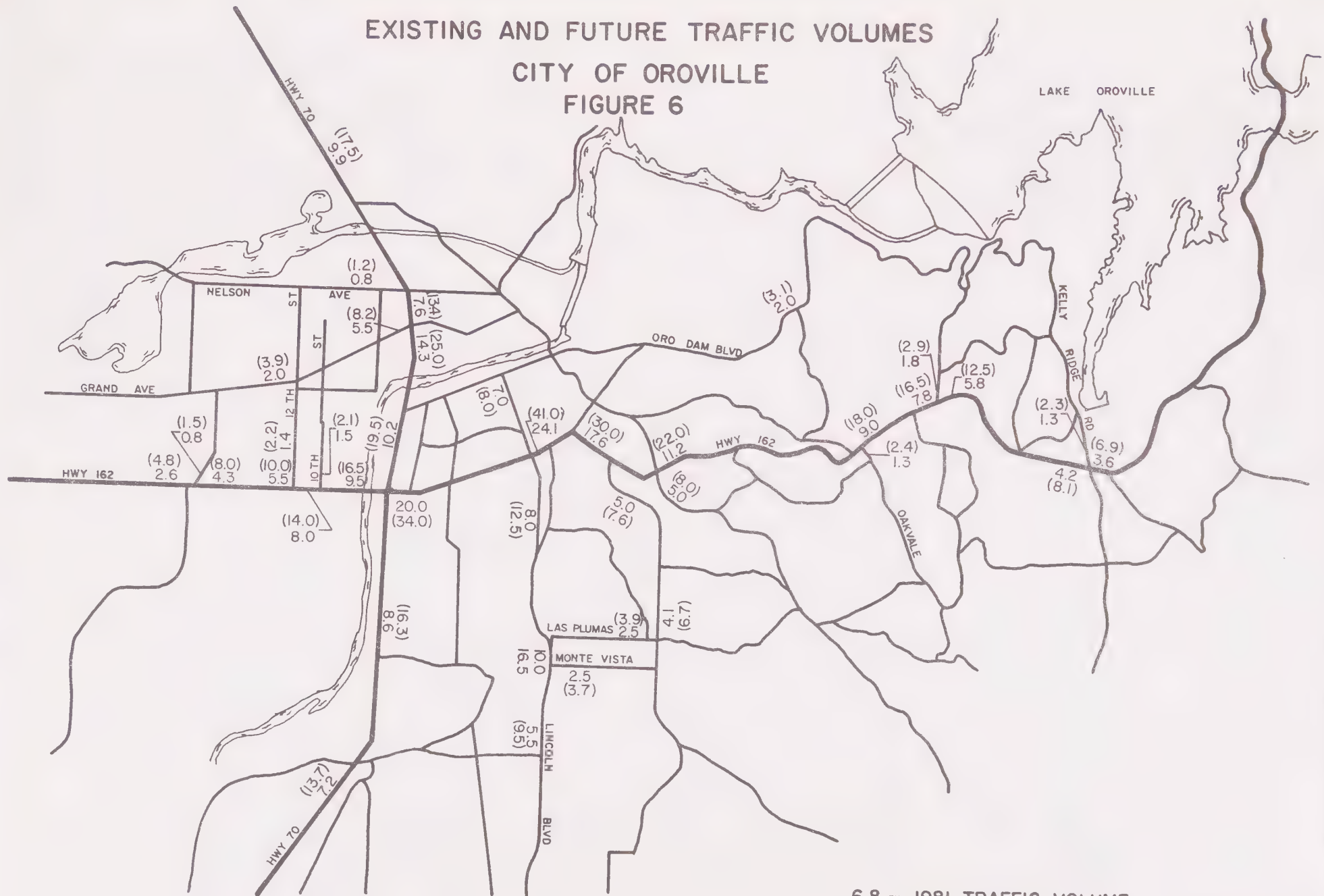
City of Oroville - Oroville recently revised its general plan Land Use, Circulation and Noise Elements in early 1983. The Oroville Circulation Element provides a description of present street conditions and then develops a traffic forecast to the year 2005 for the city's planning area (see Figure 6). The boundary of the city's planning area is approximately the same as the County's.

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(1) Chico Urban Area Transportation Study, prepared by JHK and Associates, San Francisco, November, 1982, p. E-3



# EXISTING AND FUTURE TRAFFIC VOLUMES CITY OF OROVILLE FIGURE 6



6.8 - 1981 TRAFFIC VOLUME

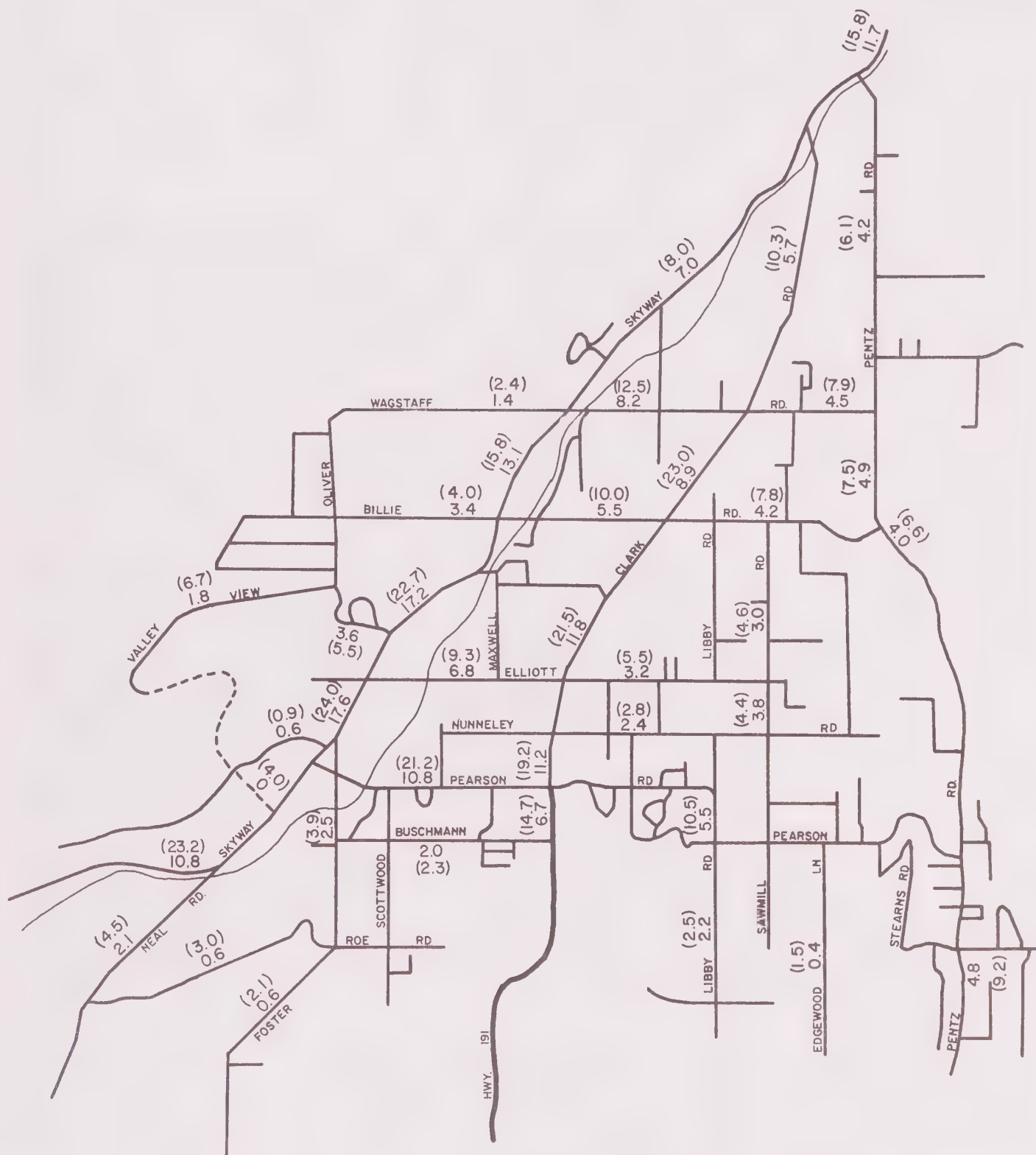
(9.5) - 2005 FORCASTED TRAFFIC VOLUME

(VOLUME IN THOUSANDS OF AADT)

# EXISTING AND FUTURE TRAFFIC VOLUMES

## TOWN OF PARADISE

### FIGURE 7



Many circulation improvements recommended in the Oroville Circulation Element are located in areas currently under County jurisdiction. The bulk of these County located improvements are situated in the west Thermalito and south Oroville areas and involve construction of new collector streets and arterials.

The Oroville Circulation Element provides implementation language for an Oroville area traffic study and an airport environs plan. The area traffic study is recommended to be prepared in conjunction with the County, in that much of the area's traffic originates in County jurisdiction. The Circulation Element also suggests the potential use of assessment district and developer fee street improvement financing mechanisms similar to those which are discussed above regarding the Chico Urban Area Transportation Study.

An assessment of the City of Oroville Circulation Element reveals several concerns that will need to be addressed in future planning discussions, including:

- . The methodology utilized in developing the City's Circulation Element projected growth of traffic volumes based on historical traffic growth at selected counting locations and was not directly based on land use under buildout conditions. Trend line projections are not reliable in forecasting future traffic conditions. A more appropriate traffic forecasting method would utilize planned land use patterns as its basis for projecting and planning circulation system.
- . There is an over-reliance on State Route 162 as an arterial for the planning area east of the City of Oroville. The radial pattern of collectors in the eastern planning area converge on State Route 162 in generally the same area of central Oroville and many work and commercial trip ends are concentrated in this area.
- . The rolling terrain in the urban area's eastern planning area makes road construction and expansion more expensive and difficult (e.g. rock removal, cut and fill operations cause increased development costs).

Town of Paradise - The Town of Paradise completed its first general plan in 1982 and it covers a planning period to 1992. The communities of Paradise Pines and Magalia, which are in County jurisdiction, were not included. The plan found that the Town's present arterial road system is adequate to handle future traffic flows, but recommend the development of better cross-town access to Feather River Hospital.(1) The plan also set as policy the preservation of the rural character of the Town's neighborhood and collector road system and calls for study of the feasibility of establishing a local fixed route bus system.(2)

(1) Paradise General Plan, 1982-1992, p. VII - 35, 37

(2) Ibid, p. VII - 37, 41



A comprehensive traffic circulation study for the Town was completed in late 1982, as called for in the general plan.(1) This study included areas only within the Town's municipal limits and shows the need for several collector road extensions to 1990. Figure 7 shows existing and year 1992 forecasted traffic volumes on the Town's major streets.

The Paradise General Plan recommends that a master plan be developed for bicycle, pedestrian, and equestrian paths and trails in and adjacent to Paradise.(2) The Town has completed a bicycle master plan which stresses use of the abandoned Southern Pacific railway corridor through western Paradise.(3) State funding for the first phase of the bicycle plan has been approved.

City of Gridley - The City drafted a revised circulation element during 1983 which identified several potential street capacity problems within the City in the long term future. The draft also proposed several roadway extensions throughout the City that would serve anticipated growth. The draft did not establish any timetables for its proposals.

The RTP utilizes the transportation plans of Butte County and its cities and assumes that locally adopted circulation elements adequately describe each respective local street and highway system, as well as other modes including public transportation.

The RTP states its long-term goal towards transportation development in Butte County and then describes critical transportation issues while relating them to objectives and policies for streets and highways and other local transportation issues which are addressed in this Transportation Element. The RTP lists current and future deficiencies in the County transportation system and provides a list of five-year transportation projects necessary to achieve the regional transportation objectives.

Gridley's draft circulation plan also indicates retention of the existing State Route 99 relocation (east of existing alignment) from the Sutter County line to Hamilton Road.

### 6.13 Butte County Regional Transportation Plan

As mentioned in Section 1.22, the major emphasis of the Butte County RTP involves specific transportation projects that plan to utilize state or federal monies during the next five years. The RTP utilizes the transportation plans of Butte County and its cities and assumes that locally adopted circulation elements adequately describe each respective local street and highway system, as well as other modes, including public transportation.

- (1) Town of Paradise, Traffic Circulation, Safety and Speed Zone Studies, and Traffic Control Device Inventory, prepared by TJKM Transportation Consultants, Walnut Creek, September, 1982.
- (2) Paradise General Plan, p. IV - 15.
- (3) Town of Paradise, Paradise Bikeways Master Plan, Adptd. Nov. 1982
- (4) City of Gridley, draft Circulation Element of the General Plan, p.3



#### 6.14 Caltrans

The State highway system is the transportation lifeline for Butte County. Adequate state highways must be insured or the County's economy and its development will be hindered.

The easiest way to manage growth is to build good roads to those areas where development is wanted and planned. Caltrans' priorities emphasize that land use decisions should lead, not follow; and the State should not provide opportunities for spreading land development by building or improving highways into undeveloped areas.

Caltrans' priorities for highway work are; in order:

1. Maintenance and rehabilitation.
2. Improvements that help safety and/or traffic movement.
3. New highways that close short gaps or improve main state wide travel routes.

#### 6.2 Population Growth and Land Use Concerns

The Butte County Planning Department has developed population growth projections for sixteen planning areas to the year 2000.(1) Overall, the countywide growth rate is assumed to occur at a sustained rate near 3.0 percent per year to the end of the century.(2) This would mean a year 2000 Butte County population of 266,010 or a 82.8 percent increase since the 1980 census. Table 6 and Figure 8 on the following pages shows the forecasted distribution of population by planning area for the year 2000.

It should be noted that recent California Department of Finance projections (September, 1983) forecasted Butte County's year 2000 population at 225,800. This plan's analysis has utilized the higher Planning Department forecast, with the understanding that future County forecasts will assess the effective difference between the two projections over the short term future.

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(1) Butte County 1985-2000: Population, Employment, Land Use: An Assessment of Future Conditions. A Report by the Butte County Planning Department, 1982.

TABLE 6

Population Distribution and Density  
by Planning Area - 1980 and 2000

<u>Planning Area</u>	<u>Population</u>	<u>%</u>	<u>Pop/Sq. Mi.</u>	<u>Population</u>	<u>%</u>	<u>Pop/Sq. Mi.</u>
1. Nord	3,347	2.3	25.4	9,310	3.5	70.6
2. Forest Ranch Cohasset	2,332	1.6	10.7	6,650	2.5	30.6
3. Stirling City	572	0.4	4.6	600	---	4.8
4. Chico	54,974	38.2	1,577.7	95,760	36.0	2,748.3
5. Upper Ridge	5,168	3.6	238.0	13,300	5.0	621.4
6. Paradise	22,648	15.7	986.0	34,580	13.0	1,505.5
7. Concow	1,021	0.7	9.5	3,000	1.0	27.8
8. Durham	3,858	2.7	27.2	5,320	2.0	37.5
9. Central Butte	927	0.6	12.2	6,650	2.5	87.8
10. Feather Falls- Brush Creek	663	0.5	2.9	700	---	3.1
11. Table Mountain	885	0.6	10.2	2,360	1.0	27.2
12. Berry Creek- Hurleton	1,793	1.3	15.4	6,650	2.5	57.0
13. Gridley-Biggs	11,850	8.2	58.5	23,940	9.0	118.1
14. Oroville	27,565	19.2	455.9	45,220	17.0	747.8
15. Palermo	3,294	2.3	200.8	6,650	2.5	405.3
16. Honcut- Bangor	<u>2,956</u>	<u>2.1</u>	24.3	<u>5,320</u>	<u>2.0</u>	43.7
	143,853	100.0		266,010	100.0	

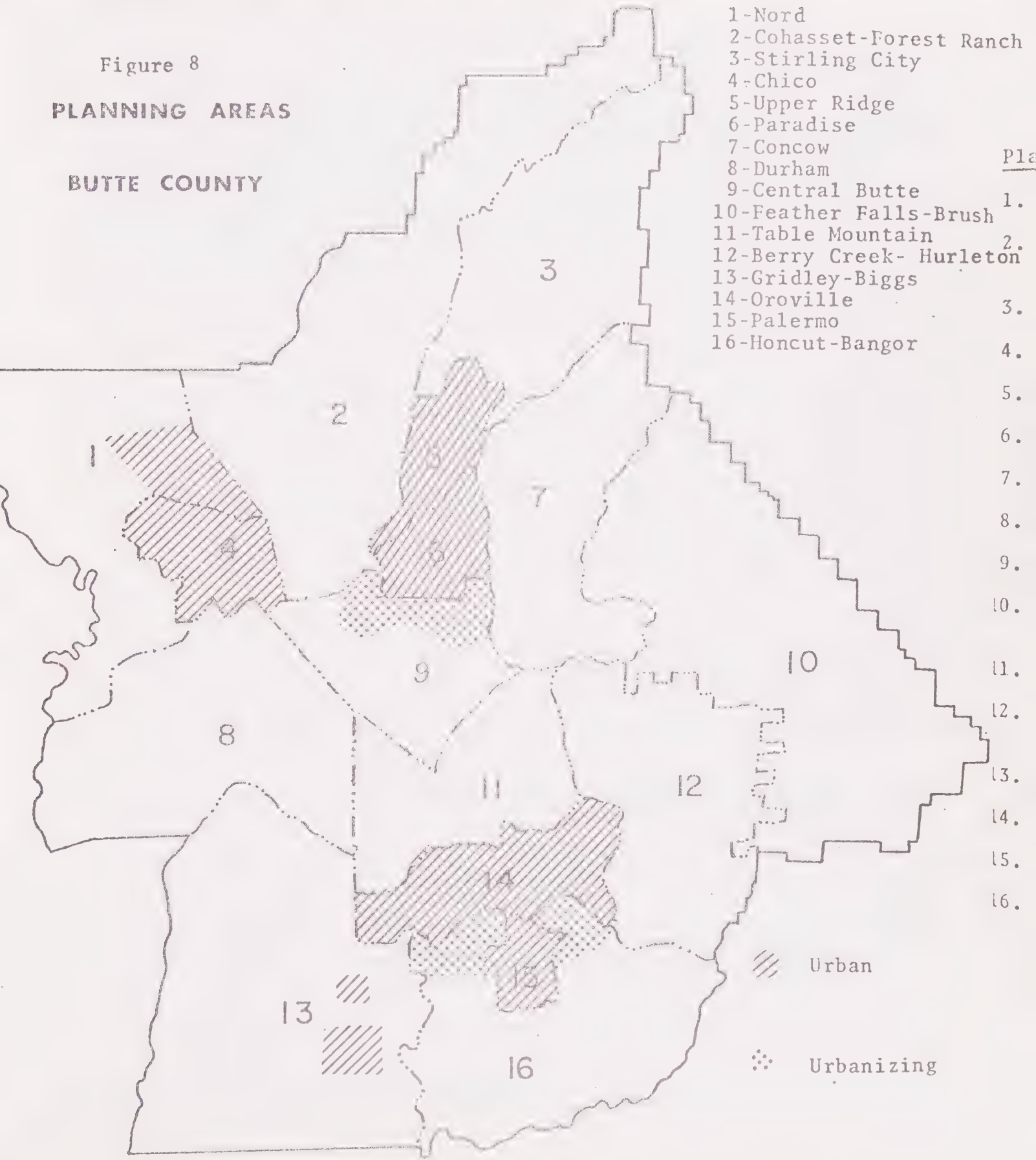
Source: Butte County 1985-2000: Population, Employment, Land Use: An Assessment of Future Conditions. A Report by the Butte County Planning Department, 1982.

Figure 8

PLANNING AREAS

BUTTE COUNTY

- |                          |    |
|--------------------------|----|
| 1-Nord                   |    |
| 2-Cohasset-Forest Ranch  |    |
| 3-Stirling City          |    |
| 4-Chico                  |    |
| 5-Upper Ridge            |    |
| 6-Paradise               |    |
| 7-Concow                 |    |
| 8-Durham                 |    |
| 9-Central Butte          |    |
| 10-Feather Falls-Brush   | 1. |
| 11-Table Mountain        | 2. |
| 12-Berry Creek- Hurleton |    |
| 13-Gridley-Biggs         | 3. |
| 14-Oroville              |    |
| 15-Palermo               |    |
| 16-Honcut-Bangor         | 4. |



## 6.21 Urban Area Growth

Chico and Oroville, the County's two largest urban areas, respectively, are forecasted to contain the County's greatest nominal growth to 2000. The growth rate in the Paradise area is expected to slow in the Town of Paradise and increase above the County average in the Paradise Pines area. Growth rates in the Gridley-Biggs and Palermo areas are expected to be slightly above the County average for the period. The combined urban area population for Butte County is projected to be approximately 226,450 or 85.1 percent of the countywide 2000 population, compared to 87.2 percent of the 1980 countywide population.

## 6.22 Rural Area Growth

Butte County's rural area growth rates are expected to be generally higher than urban area growth rates to year 2000. The bulk of the rural area population growth will occur in the County's foothill areas. The foothill share of the County's total population is expected to increase from 7.8 percent in 1980 to 11.5 percent in 2000, a population increase of 186.7 percent representing approximately 20,800 people or 7.8 percent of the forecasted countywide population in year 2000. The largest increases of foothill growth occur in the Forest Ranch-Cohasset, Central Butte, Berry Creek-Hurleton, and Honcut-Bangor planning areas (see Table 6).

Population growth on the County's agricultural Sacramento Valley floor is expected to occur mostly within and near urban areas which are designated for urban development by the land use element. Rural area growth on agricultural lands will be suburban in character and confined chiefly to small agricultural parcels that are designated around the community of Durham and City of Gridley.

## 6.23 General Planning Implications of Forecasted Growth to the Butte County Circulation System

Since Butte County's principal growth areas are forecasted to be located in the County's urban and foothill areas, the focus of future circulation system expansion, planning policy and specific programs must attend on these areas. In County areas where little or no growth is expected and where the current road and highway system is forecasted to have adequate capacity in the year 2000, a goal of maintenance planning and programming is in order.

For the County's growing urban areas, comprehensive urban area circulation planning should occur within each municipal sphere of influence. This suggests the need for circulation planning and financing programs that insure coordinated city-county transportation developments, as appropriate, for each Butte County urban area.



In the rural foothill areas, the implications of population growth to the County's circulation system is extremely varied and discussing the range of implications in detail will require considerably more information than can be provided by the Transportation Element, alone. This problem begins with the area's topographic diversity, remoteness and geographically spread development patterns. Much of the development in the foothills has been by individuals building on single lots. The pattern is essentially random, and it follows no plan. The Butte County land use designation of Agricultural-Residential (allowing 1-40 acres per dwelling unit), which is found throughout the foothill areas, leaves an extremely wide range of land use densities which can impact long range future traffic forecasts for an area with a proportionally equal and uncertain range. This problem is compounded when there is the presence of general (A-2) zoning in a foothill area designated as Agricultural-Residential in the General Plan.

The above-described problems in planning for long range circulation development in the foothills are again compounded by the degree of uncertainty where or when growth will actually occur in foothill planning areas. In many foothill areas, the accuracy of middle and long range traffic projections based on possible ranges of land uses are often largely forfeited, thus leaving in question what would be an adequate level of local circulation system development. This suggests the need for more precise foothill land use designations and zoning in the Land Use Element so that a future foothill circulation development program can be accurately projected, within reason.

A 1982 inventory of existing rural residential parcels indicated the extent to which rural land parcelization has occurred in upland Butte County.(1) The inventory indicated that the County's eight foothill-mountain planning areas contained enough existing rural parcels of 40 acres or less in size to accomodate a population increase of 224 percent over its 1980 population. Specifically, the inventory found that existing rural residential parcels in foothill-mountain areas could potentially accomodate 24,960 people. In 1980, the same area had a rural population of 11,149. Based on the Planning Department's population forecasts, existing foothill-mountain parcels could accomodate 78.2 percent of the year 2000 population forecasted in the eight upland planning areas.

In foothill areas where reasonably confident planning area traffic forecasts can be made available, the focus should be towards development patterns which minimize the burden of expanding the existing circulation network beyond existing foothill-mountain communities and foothill transportation corridors.

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(1) Butte County Planning Department, Inventory of Rural Residential Parcels in Butte County by Planning Area, Fall, 1982.

### 6.3 Road and Highway Forecast

An analysis of future traffic volumes on Butte County's road and highway network must first inventory past and current traffic conditions. This information is then analyzed in relation to traffic volume changes that are projected from population growth and land use changes within and outside the County to the year 2000; resulting in a traffic volume forecast for State and County roads and highways. Finally, the year 2000 traffic forecast is compared with present road and highway capacity levels to illustrate where the State and County circulation systems will need increases in capacity or new road segments.

#### 6.31 Current Traffic Conditions

Traffic volumes information is collected by the Butte County Public Works Department, Caltrans, and the cities in Butte County on a regular basis every two to three years at selected locations throughout the County. This traffic data is then reported as annual average daily traffic, and represents the total number of motor vehicles using the road during a 24 hour period on a typical weekday.

Generally, County traffic growth since the early 1970's has increased most rapidly in and near the County's three largest urban areas; Chico, Oroville and Paradise. Increases in AADT major arterials connecting these three urban areas also increased significantly, although not as rapidly as within the urban areas themselves.

Traffic growth on State and County arterial highways that serve the rural Sacramento Valley floor were characterized by generally smaller volumes and much slower growth rates than adjacent urban areas during the 1970's. In the County's rural foothill areas, AADT increases were quite rapid during the 1970's, although total traffic volumes remained relatively low. Traffic volumes in the County's mountainous areas remained light through the 1970's.

Table 7 on the following page shows AADT changes at selected rural locations on major County roadways. The only existing rural roadway capacity problem on the County's highway network was solved by completion of the Skyway expansion project between Chico and Paradise in 1982. Present urban area traffic counts should be referred to respective city circulation studies and plans. Table 9, on page 60, shows changes on State highway routes in Butte County. Figure 9 shows relative 1981 traffic volumes on major Butte County rural highways and Figure 10 indicates their approximate existing capacity.

Table 7

## Traffic Volumes - Rural County Roads

1973 and 1981

<u>County Road and Location</u>	<u>Average Annual Daily Traffic</u>	
	<u>1973</u>	<u>1981</u>
Hamilton-Nord Rd. north of SR 32	640	1190
Cohasset Rd. north of Keefer Rd.	540	920
Keefer Rd. east of SR 99	210	680
Sacramento Ave. at Sandy Gulch	1620	960
Chico-River Rd. west of Lone Pine Rd.	1130	1360
Humbug Rd. east of Skyway	1110	1960
Skyway south of Humbug Rd.	8190	9150
Humboldt Rd. east of SR 32	150	480
Dayton Rd. north of Durham-Dayton Hwy.	1950	2910
Dayton Rd. east of Dayton	1490	2550
Durham-Dayton Hwy. east of Dayton Rd.	980	1200
Midway south of Oro-Chico Hwy.	4530	4630
Midway north of Durham	4070	2510
Durham-Dayton Hwy. at Butte Creek	3020	2320
Midway south of Durham	1820	1330
Skyway north of De Sabla	n.d.	880
Skyway north of Coutolenc	2890	9410
Skyway west of Town limits	8010	12520
Pentz-Magalia Rd. south of Town limits	1430	1270
Neal Rd. east of SR 99	820	710
Pentz Rd. east of SR 99	950	2080
Concow Rd. north of SR 70	n.d.	610
Ord-Ferry Rd. at Sacramento River	850	1440
Frias Rd. north of Nelson Rd.	410	510
Afton Rd. at Glenn Co. line	110	160
Colusa Hwy. at Colusa Co. line	270	550
Richvale Hwy. east of Richvale	890	1010
Afton Rd. west of Biggs	1090	1340
Biggs-Gridley Hwy. south of Farris Rd.	2390	2280
Biggs-Gridley Hwy. north of Gridley	2360	2900
East Gridley Rd. east of Larkin Rd.	3870	4560
Larkin Rd. south of Evans Rd.	1540	1770
Larkin Rd. north of Hamilton Rd.	1240	1560
East Biggs Hwy. east of SR 99	1190	2020
Palermo Rd. west of Lone Tree Rd.	1060	1220
Lincoln Blvd. north of Palermo Rd.	2390	3170
Oro-Quincy Hwy. at Brush Creek	450	480
Oro-Quincy Hwy. north of Foreman Rd.	1040	1160
Forbestown Rd. west of Lumpkin Rd.	840	1270
Lumpkin Rd. north of Forbestown Rd.	510	640
Bangor Hwy. north of Bangor	660	1080
La Porte Rd. west of Bangor	420	600

n.d. - no data





Figure 9  
1981 Traffic Volume on Major Highways  
(see jacket)



Figure 10  
1981 Highway Capacity on Major Highways  
(see jacket)





It is important to note that not all the AADT counts shown in Table 7 represent continuous traffic increases through the period. In some cases, traffic decreases are reported, as in the Durham, Biggs-Gridley, Palermo and Forbestown areas.(1) As noted in the discussion on energy, which related traffic volume declines to gasoline price increases and the petroleum shortages of 1973-74 and 1979, many rural area traffic counts have shown temporary declines in AADT during periods of unstable gasoline markets. Traffic in Butte County's largest urban areas were affected less; however declining AADT growth rates are found in all urban areas during periods of gasoline price and supply instability.

### Varied Trip Generation Rates

A review of current traffic demand in Butte County indicates substantial variation in daily trip generation rates, particularly in the County's rural areas.(2) For road planning purposes, the Public Works Department has traditionally assigned an average of seven daily trips per average residential dwelling unit while slightly higher rates are normally applied to urban areas.(3) However, in the County's rural areas, and particularly in the more remote foothill and mountain areas, trip generation rates (based on population and dwelling unit data) decline sharply with increased distance from urban and employment centers. Also, it appears that foothill and mountain communities with stronger community centers have even lower trip generation rates. Extensive retirement populations in these rural areas would also be cause for reduced rural trip generation. An analysis of remote rural foothill community trip generation reveals trip generation rates ranging from near 4.0 to 6.0 average daily trips per dwelling unit, except in the Concow planning area, where it appears the trip rates are even lower.

- 
- (1) Traffic decreases in the Durham area were primarily due to changing the location of Butte Community College from Durham to its present site.
  - (2) Motor vehicle trip generation rates are assigned to different land uses for transportation planning purposes. Rates are expressed as the number of daily trip ends each category of land use will generate, on the average. For example, an urban single family residential home could be assigned a trip generation rate of 10 trips per day. This would mean that five round trips were generated by that land use per day; (i.e. leaving and returning to the home). Other land uses, such as commercial uses, are assessed trip generation rates based on trip ends in a similar fashion, but they are established on floor space criteria such as commercial square-footage.
  - (3) See Appendix C Average Trip Generation Rates for Common Land Uses.

## 6.32 Assessment of Projected Traffic Growth by Planning Area

Year 2000 population forecasts have been assigned to sixteen planning areas which correspond to U. S. Census information boundaries (see Figure 8 ). The following review of each planning area is an important part of making future traffic estimates on Butte County arterial and major roads.

Nord - A nearly tripled population is forecasted to be located mostly in the extreme north Chico area around the Keefer Road area. Little population growth is expected west of State Route 99. Road capacity is not seen as a problem, but increased AADT may negatively impact Chico urban area circulation plans since growth in the Nord planning area will be highly dependent on the Chico economy. Traffic growth on State Route 32 to Glenn County and State Route 99 to Tehama County is expected to increase at rates similar to the last ten years, due largely to slow growth in those adjacent counties and increased intercounty commerce resulting from Chico urban area growth.

Forest Ranch - Cohasset - A nearly tripled population could be accommodated by current arterial and collector road capacity if growth was distributed near existing rural communities in the planning area. Primary access roads that generate from the Chico urban area and serve the Cohasset, Forest Ranch, Butte Meadows, Stilson Canyon, and Butte Creek Canyon areas would be affected by reduced levels of service and much increased rural congestion, but still within the levels of service capacity thresholds contained in the Transportation Element. It should be noted that State Route 32 is designated as a controlled access highway by Caltrans in order to provide safe and efficient high speed travel through this planning area to interior northeast California. It is assumed that appropriate steps will be taken to ensure that this designation will remain for State Route 32 throughout the planning period to year 2000.

Special circulation problems created by significant development and population increases away from the planning area's existing communities and circulation network will require further study and comprehensive specific plans should be developed. For example, extensive development on Doe Mill Ridge would present such a problem and a comprehensive areawide specific plan for circulation (as well as other planning concerns) and circulation financing is needed before any significant development proposals are allowed in such areas.(1)

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(1) Butte County Planning Department, Analysis of Implications Between the Chico Urban Area Transportation Study (CATS) and State Route 32 Corridor Development, Memorandum from M. Radabaugh to S. Streeter, January 28, 1983.



Stirling City - No significant population growth or land use changes affecting circulation are forecasted in this mountain planning area to the year 2000.

Chico - Chico will be the dominant city in Butte County in year 2000 with approximately 36 percent of the countywide population located within the influence of the urban area. The Chico Urban Area Transportation Study (CATS) should be fine tuned and developed into the basis for an urban area circulation element to be used for planning and financing the urban area's future circulation needs and requirements. Circulation plans should also encourage and provide plans to take advantage of this city's tremendous potential for public transportation and bicycle commuting.

Upper Ridge - Significant population growth in this mountain planning area will cause need for a capacity expansion of the Skyway from Paradise Pines to the Town of Paradise sometime during the 1990's. Also, it will be important to ensure adequate access for rapid evaluation in case of a wildland fire emergency in this planning area. The upper ridge will continue to have a very high percentage of senior citizens, and public transportation development for this area should be encouraged as part of a Paradise area transit system.

Paradise - The Paradise planning area is almost entirely under the jurisdiction of the Town of Paradise. The Town has developed a circulation forecast to 1990 which shows the need for several street collector extensions to better serve east-west travel demand in the community.

Concow - The population of the Concow area is forecasted to triple by the year 2000. However, because of extremely low trip generation rates expected by the area's rural population, traffic growth rates will increase slowly, resulting in no needed capacity expansion of primary roads to the area.

Durham - Durham planning area population growth will occur at a much slower rate than countywide growth and no road and highway capacity increases will be required. However, State Route 99 which borders the Central Butte planning area, will require increased capacity before the early 1990's to a four-lane expressway due to increasing regional and local traffic.

Central Butte - This foothill planning area's population growth rate forecast is the highest in Butte County to the year 2000; more than a 600 percent increase over 1980. This is due to a very large inventory of land with a designation of Agricultural-Residential (A-R) in the Land Use Element. This area is located mostly south of the Town of Paradise and totals approximately 12,500 acres. The development potential from the A-R designation is extremely variable due to its wide density range (1-40 dwelling units per acre) allowed.

This kind of density range does not allow the development of a confident traffic forecast for the planning area.

The planning area presents special problems for circulation planning and forecasting, in that the area is largely undeveloped, contains difficult terrain, and could potentially impact circulation plans and programs in the Town of Paradise and Chico. Before significant developments occur in this area, a comprehensive plan should be developed for this planning area.

Feather Falls - Brush Creek - No significant population growth or land use changes affecting circulation are forecasted in this mountain planning area to the year 2000.

Table Mountain - Most of the growth in this foothill planning area will occur adjacent to the Oroville planning area and new traffic growth should be absorbed by the circulation network serving the Oroville urban area.

Berry Creek - Hurleton - This foothill planning area is expected to experience a rapid growth rate to the year 2000. A significant portion of the parcels and land divisions that would accommodate the projected growth in this area have already been created but are presently vacant. Primary access routes in this planning area are State Route 162/Oroville-Quincy Highway which services the Berry Creek area and Forbestown Road which services the Hurleton area and points east in the Feather Falls - Brush Creek area.

Due to lower trip generation rates found in this rural foothill area, overall traffic growth rates are expected to be lower than urban area growth rates. However, trip generation rates in areas nearest Oroville should be higher, due to increased economic activity related to the Oroville urban area. No arterial road or highway capacity increases will be required to serve this area, however, a number of rural roads may be in need of improvement as new residents enter the area.

Gridley-Biggs - Rural traffic growth in this agricultural planning area will increase slowly to the year 2000 and no arterial capacity increases are projected. Traffic growth in the City of Gridley will cause the potential for reduced levels of service during peak traffic hours on several downtown streets and State Route 99 immediately east of downtown Gridley.

Oroville - This planning area conforms closely to the area covered in the City of Oroville's General Plan. Although the Oroville



area population growth rate is expected to be slightly slower than the countywide rate to year 2000, it will result in significant traffic increases throughout the planning area.

The long-range need for roadway expansion to a four-lane surface street is forecasted for Oroville Dam Boulevard (State Route 162) from 12th Street to Canyon Drive. Also, extension of Ophir Road and a north-south collector will be needed to service the south Oroville area, which is expected to be the urban area's main growth area. The expansion of State Route 162 will probably occur in segments in the 1990's although more immediate sight distance improvements at the west interchange of State Routes 70 and 162 would help to reduce the current accident rate and slightly improve State Route 162 capacity at this point. It should be noted that Caltrans has no current plans to widen the highway in this area.

Palermo - Traffic demand in this planning area is expected to double by the year 2000 on the area's collector roads, but no capacity problems are foreseen. Traffic demand in this planning area will be closely related to the nature of employment generation in the south Oroville industrial area.

Honcut-Bangor - The present system of major roads servicing this planning area will have ample capacity to accommodate the area's forecasted population. Most of the traffic growth will occur in the foothill portions around Bangor. Agricultural western portions of the planning area will have slow traffic growth.

### 6.33 Road and Highway Requirements in the Year 2000

Level of Service - The need for the expansion of a road's capacity is determined by relative roadway congestion and expressed in "level of service". Level of service is defined by the relationship between traffic volume and maximum design capacity of a roadway. The ratio between existing volume and capacity of a roadway is then assigned one of six service level ratings. Table 8, on the following page, illustrates maximum roadway capacities at various levels of service. A further description of level of service as it relates to traffic capacity is found in Appendix D.

For planning purposes, it is desirable to maintain high-speed rural highway traffic at a level of service "B". However, service should be considered acceptable at level of service "C", particularly when fiscal, environmental, or site constraints are prohibitive. Urban arterials and collectors should be planned to provide a level of service "C", and be considered to be providing acceptable service at level of service "D" when fiscal, environmental, or site constraints are prohibitive.

Table 8

## Roadway Capacity - Levels of Service

<u>Roadway Description</u>	<u>Level of Service as Percent of Capacity</u>				
	<u>Level A (60%)</u>	<u>Level B (70%)</u>	<u>Level C (80%)</u>	<u>Level D (90%)</u>	<u>Level E (100%)</u>
2-lane surface street	9,600	11,200	12,800	14,400	16,000
3-lane one-way surface street	14,400	16,800	19,200	21,600	24,000
4-lane surface street	19,200	22,400	25,600	28,800	32,000
6-lane surface street	28,800	33,600	38,400	43,200	48,000
2-lane rural expressway	10,500	12,250	14,000	15,750	17,500
4-lane freeway	43,200	50,400	57,600	64,800	72,000
6-lane freeway	64,800	75,600	86,400	97,200	108,000

Note: The AADT levels presented represent roadway conditions on level terrain and with adequate sight distance and shoulder width.

Rural Areas - Table 9, indicates traffic volume changes between 1971 and 1981 and provides a year 2000 forecast for the State highway system in Butte County. Figure 11, on page 62a, shows relative traffic volumes on major Butte County rural highways forecasted for the year 2000. Figure 11 should be compared with figures 9 and 10, in order to compare traffic volume changes between 1981 and 2000 and existing capacity for the State highway system.

The following state highway segments have current or projected capacity-safety problems that will need correction during the 1981 to 2000 planning period.

State Route 99 - 0.8 miles north of Pentz Road to 0.4 miles south of the Skyway overcrossing. This segment of highway is presently near capacity and should be widened to a four-lane expressway in the near future. This highway provides the vital transportation link between the Chico urban area and points to the south. This project should receive a number two priority ranking in future Butte County RTIP's.

State Route 99 - Live Oak in Sutter County to East Biggs Highway needs continuous shoulders and channelizations to improve safety, as well as capacity. This project should receive a number three priority in future RTIP's.

State Route 32 - Gianella Bridge. The present bridge presents a safety and occasional capacity problem due to its narrow lanes. A new bridge with shoulders is needed. This project should receive a number four priority in future RTIP's.

Other capacity-related State highway projects in the 1983 RTIP and which are located in rural areas of the County include;

- . Addition of passing lanes on State Route 70 from the Yuba County line to Oroville.
- . Channelizations on State Route 99 from 0.5 miles south of Wilson Landing to 0.5 miles north of Broyles Road.
- . Widening and strengthening of various State Route 70 bridges at Honcut Creek.

Also, the County should continue to support retention of right-of-way for the future realignment of State Route 99 from the Sutter County line to Hamilton Road, although the construction of this realignment is not forecasted during the planning period.

Table 9

Existing and Forecasted Traffic Volumes  
State Highway Routes in Butte County  
(Annual Average Daily Traffic)

<u>Location</u>	<u>1971</u>	<u>1981</u>	<u>Caltrans 2000 Forecast</u>	<u>Butte County 2000 Forecast</u>
<u>State Route 32</u>				
Glenn-Butte line	5600	8200	13000	13000
East Ave. (east)	n.d.	9800		15500
W. 8th Ave. (east)	7500	10200		16100
			15200	
Sacramento Ave. (east)	9200	10800		21200x
Chico - 1st St. (east)	8000	14700		19900x
Main St. (eastbound)		9100		21700x
	14400			
Main St. (westbound)		7500		
Jct. SR 99 (eastbound)		8200		21400x
	11300			
Jct. SR 99 (westbound)		6100		
			18700	
Chico-Forest Ave. (west)	2100	3000		16700
			4000	
Forest Ranch (west)	850	2200	4100	4500
Lomo (west)	800	1500	2900	3000
Butte-Tehama line	550	820	1600	1600
<u>State Route 70</u>				
Yuba-Butte line	5000	6300	9400	9400
Palermo Rd. (north)	5100	6700	11200	
Jct. SR 162 (north)	7200	10200	12200	16000xx
Oroville-Montgomery (north)	9400	14300		22800xx
Jct. SR 149 (south)	7000	10300	14900 (south)	15900xx
Jct. SR 191 (south)	3250	4850		6500
Pentz-Magalia Hwy. (south)	1450	1950	4100 (north)	4000
Concow-Big Bend Rd. (south)	1400	n.d.	3200 (north)	2800
Butte-Plumas line	1250	1200	1900	1900
<u>State Route 99</u>				
Sutter-Butte line	6100	7700	10200	10200
Gridley-Wilson Ave. (north)	11900	12800	15000	15000
Jct. SR 162 (north)	4200	4700	7000	6000



Table 9 (continued)

<u>Location</u>	<u>1971</u>	<u>1981</u>	<u>Caltrans 2000 Forecast</u>	<u>Butte County 2000 Forecast</u>
Jct. SR 149 (north)	8600	10600	16800	17500
Neal Rd. (north)	8800	14000	24000 27200	23000
Skyway (north)	14000	26000		50900 <sup>x</sup>
Jct. SR 32 (north)	17000	27500	38700	66700 <sup>x</sup>
Chico-Cohasset Rd. (south)	13500	23100		48600 <sup>x</sup>
Chico-Eaton Rd. (south)	5900	9900	12500	20400 <sup>x</sup>
Keefer Rd. (south)	5100	7600		12500
Butte-Tehama line	4900	6000	9900	9900
<u>State Route 149</u>				
Shippee Rd.	4300	6400	9800	11500
<u>State Route 162</u>				
Glenn-Butte line	830	880	1500	1200
Jct. SR 99 (Biggs north)	630	700	1500	900
Jct. SR 99 (Richvale east)	1750	2100	3900	2800
Oroville-Larkin Rd. (east)	3050	4300	4500	7400 <sup>xx</sup>
Oroville-12th St. (east)	5100	8000	11400	12900 <sup>xx</sup>
Jct. SR 70 (east)	7050	20000	33000	31500 <sup>xx</sup>
Lincoln Blvd. (west)	n.d.	24000		37900 <sup>xx</sup>
Olive Hwy. (east)	n.d.	17900	17500	27900 <sup>xx</sup>
Foothill Blvd. (east)	n.d.	11200		20100 <sup>xx</sup>
Oakvale Ave. (east)	n.d.	8500	13700	16000 <sup>xx</sup>
Kelly Ridge Rd. (east)	n.d.	3550	6200	6200 <sup>xx</sup>
Forbestown Rd. (east)	n.d.	1250		3000
Forman Rd. (end SR)	770	1050	1700	2500
<u>State Route 191</u>				
Jct. SR 70	1850	3100		4500
Pentz Rd. (east)	1900	n.d.	5100	
Paradise-Pearson Rd. (end)	3850	6700		14700 <sup>xxx</sup>

n.d. - no data

x - Chico Area Transportation Study, 1982

xx - Oroville Circulation Element (prorated)

xxx - Town of Paradise Traffic Study, 1982

Discussion of Year 2000 Traffic Forecasts  
State Highway Routes in Butte County

The following discussion describes generally how year 2000 traffic forecasts for various locations on the state highway system were derived by Butte County.

As the year 2000 traffic forecast indicates, Butte County utilized the county-line and/or road segment ending forecasts of Caltrans for State Route's 32, 70, 99 and 162. In the Chico area, the forecasts for State Route's 32 and 99 are from the 1982 Chico Urban Area Transportation Study (CATS), which has been cited previously. In the Oroville area, the forecasts for State Route's 70 and 162 have been prorated from the year 2005 forecast contained in the City of Oroville's Circulation Element (adopted in 1983). All other forecasted segments were based on a combination of estimated pass-through traffic plus local trip generation expected by the year 2000 land use pattern affecting a particular forecasted segment.

Critical segments where forecasts could significantly vary from actual year 2000 traffic conditions include:

State Route 32:

- . Glenn-Butte line - Caltrans forecast may be high, and will depend on the rate of growth in northeastern Glenn County and transportation salience between Interstate 5 and the Chico urban area economy. The forecast on State Route 32 in northwest Chico is greater than that indicated by the CATS in order to reflect the Caltrans county line forecast.

State Route 99:

- . Gridley - Wilson Ave. - This segment has shown significant peak day and hour variations that are related to the level of canning and food processing in Gridley. The future level of canning activity in Gridley will be the most influential factor in determining the year 2000 traffic levels at this segment.
- . Neal Road (north) - This segment will be most influenced by the future traffic generation ability of Butte Community College. The segment forecast assumes that Butte Community College enrollment will increase at a rate nearly parallel to Butte County urban area population growth rates, as a whole.

State Route 191:

- . Paradise-Pearson Rd. - The Paradise Traffic Study forecast indicates a significant build-out of the area within the Town limits near this intersection.

Figure 11  
Forecasted Traffic Volume in Year 2000 on Major Highways  
(see jacket)





County maintained rural roads which are to be improved with FAS funds have been prioritized in the RTP. These FAS system roads are presently prioritized in the following order and will be constructed as federal funds and the 10 percent local matching funds are made available:

1. Keefer Road (3.2 miles from State Route 99 to Hicks Lane)
2. Ord Ferry Road (River Road to one mile east)
3. Pentz Road (1.3 miles south of Paradise Town limits to Town limits)
4. Ophir Road Extension (1.5 miles from Lincoln Blvd. to Lower Wyandotte Rd.)
5. Cohasset Road (2.5 miles from 2½ miles to 5 miles northeast of Keefer Road)
6. Keefer Road (2.2 miles from Hicks Lane to Cohasset Road)

Urban Areas - Forecasted traffic demand for the urban areas of Chico, Oroville, and Paradise have been based largely on local forecasts generated by each municipality. The extent of urbanized area around each Butte County community is shown graphically in Figure A, which is found in the Transportation Element's policy section.

6.12. For transportation planning purposes, this Element has defined each urban area by a composite of urban FAU boundaries and urban land use plans for each city.

Projected year 2000 arterial and major collector street and highway networks for the Chico, Oroville and Paradise and Gridley-Biggs urban areas are indicated by Figures C, D, E and F, respectively, in Section 7.0. It is assumed that present urban area street maintenance and construction programs, along with new future programs, and adherence to the policies and programs of Section 7.0 will work together to determine future priorities for specific urban area street and highway projects.

Two urban area arterial highway projects have been given a high priority due to present capacity-safety problems include:

State Route 162 (Oro Dam Blvd./Oroville) - Removal and replacement of two railroad underpasses which presently constrict the 4-lane surface street to 2 lanes. This project should continue to receive a number one priority ranking in the Butte County RTIP, until it is completed.

Skyway (Paradise area) - Realignment of the Skyway between Coutelenc Road and 0.2 miles inside of the northern Town of Paradise limits. This portion of the Skyway between the Town of Paradise and Paradise Pines is at or near capacity. The realignment would follow the improved grade of the abandoned Southern Pacific rail line to Stirling City, making construction of a 2-lane expressway along this segment possible. This project is committed for summer, 1983.

A number of urban area street and highway improvements, both to increase capacity on existing arterials and collectors, and for new roads, will be required during the planning period, particularly in the Chico area and south Oroville area. The actual timing of these future highway improvements should be a result of the refinement of land use based traffic models for both the Chico and Oroville areas.

## 6.4 Other Transportation Modes Forecast

### 6.41 Public Transportation

Public Transportation services, and particularly fixed routes and scheduled bus systems, will need to continue expanding to meet the demands of the County's increasing population and ridership demand. The following forecast assessment is provided for each area of Butte County with an existing public transportation system or potential for a system:

Intercity Transit - Butte County Transit (BCT) routing is not expected to change significantly in the near future. However, BCT will continue to receive sustained ridership increases and additional buses and scheduling are likely in the future as: 1) BCT, itself, matures and increases its popularity; 2) urban area transit systems mature and transit system interfacing improves with BCT; and 3) as Butte County's urban area populations increase.

Chico Area Transit System - Chico's bus system will slowly increase its ridership rate as the system's routing is refined. In the long-term, substantially increased Chico bus ridership rates will depend on how the system is integrated into transportation plans for Chico's new residential growth areas and employment centers.

Oroville Transit System - Oroville's bus system will gain slowly in ridership as coordination between it and BCT improves. Like Chico, the Oroville system has long-term opportunities to expand if properly integrated into the transportation plans for new residential growth and employment centers.

Paradise Area - The Paradise-Paradise Pines area is forecasted to be served by a local fixed route bus system at least by the late 1980's. The Paradise General Plan calls for a feasibility study of a fixed route bus system serving the Town.(1) Because of substantial population increases that are forecasted in the Paradise Pines area, it is assumed that a Paradise area transit system would eventually include Paradise Pines in its service area.

(1) Paradise General Plan, pg. VII - 41

Other Areas in Butte County - Although future population densities in the remainder of Butte County will not likely justify additional urban area or intercity fixed route systems, the long-term potential for jitney and local service vans and buses operating on a private basis offer the best solution to providing transit services to rural areas of the County, particularly if gasoline prices should increase sharply in the future.

Passenger Rail Service - Recent federal and state budget problems have led to consideration of reduced service levels for Amtrak. However, because the Coast Starlight route is a basic component of Amtrak's national service system, no service cutbacks are expected.

#### 6.42 Transportation Systems Management

TSM programs involving ridesharing, traffic flow and signal synchronization, and bimodal traffic integration are expected to be expanded at a moderate pace through the year 2000 planning period.

The passage of SB 320, which allocates to BCAG funds for rideshare programming, will be critical component to expanding the ridesharing program in Butte County during the 1980's. Bimodal integration and route scheduling between public transit systems, ridesharing, formal and informal park and ride lot locations, and urban bicycle programs will gradually increase as planning and management decisions are made to better accommodate and coordinate opportunities for bimodal transportation programs. The actual rate of expansion of TSM programs involving bimodal transportation and ridesharing will largely depend on the following three factors; 1) the level of governmental encouragement and support; 2) the effect of economic conditions and gasoline prices on future auto travel demand, and 3) the rate of population growth in the County's urban areas.

Traffic flow and signal synchronization improvements are assumed to occur in each urban area roughly proportional to population growth.

#### 6.43 Bicycle Ridership

Bicycle ridership is expected to take a slowly increasing portion of the total number of daily personal trips in urban areas through the year 2000. However, the actual rate of increase will, like many TSM programs, depend on 1) government encouragement and support, 2) the effects of economic conditions and gasoline prices of future auto travel demand, and 3) the rate of population growth.

An important part of any program to increase the rate of bicycle use will be the adoption and implementation of bike plans for each urban area, particularly for the Chico and Oroville areas. Cooperative bike planning, including for the use of TDA allocations, between



Butte County and the cities will be necessary in many cases. Also, Caltrans should be encouraged to develop improved bicycle access when reconstructing or expanding state highways during the planning period.

Butte County should develop a rural bicycle plan to serve urban recreational demands. In most cases, bicycle commuting in rural Butte County will have little demand. The only exception would be on routes between the Chico urban area and Butte Community College. The following is a list and description of possible bicycle routes that should be considered in a rural bicycle plan:

State Route 99 - Pentz Road to Butte Community College - This could be a Class II bicycle commuter route. Caltrans should insure adequate bicycle access from Chico to Pentz Road during the widening of State Route 99.

Chico to Durham to Butte Community College - This route would take advantage of any abandonment of the Northern Sacramento Railway line which parallels the Midway between Chico and Durham. A Class II route would be developed between Durham and Butte College.

State Route 32 - Chico to Forest Ranch - This has become a popular recreational route and Caltrans should consider construction of a Class II facility.

Sacramento Ave. to River Road to Chico-River Road to W. 5th Ave.- This is a popular recreation loop and the County should consider development of Class II and III facilities.

Larkin Road - State Route 162 to Oroville - Gridley Highway - This route has potential as a Class II or III facility.

Oro Dam Blvd. - east of State Route 162 to Dam - This could be a popular route if adequately developed.

#### 6.44 Pedestrian Access

Most future pedestrian access development will be parallel with urban street development in urban growth areas. The development of pedestrian recreational corridors will require that Butte County and associate city governments take an active role in developing such corridors. It should be noted that the Butte County RTP's policies for pedestrian issues are similar to those for bicycle ridership, including for the use of TDA funds.

#### 6.45 Aviation Forecast

Butte County air travel is expected to increase at a faster rate than countywide population growth to the mid 1990's, due largely



to new economies that are presented by increasing urban area populations. Annual per capita Butte County air travel is expected to increase from 0.57 trips/person-year in 1970 to over two trips/person-year 1995.(1) It is forecasted that four-fifths of 1995 Butte County scheduled passenger air travel will be to and from locations in California. Over 75 percent of this California travel is forecasted to occur between Butte County and Southern California.(2) Also, the number of aircraft based at County airports is expected to increase at rates near population growth rates. No major changes in airport classification or physical layout is forecasted during the planning period.

#### 6.46 Commercial Goods Transportation Forecast

Freight growth in trucking is expected parallel gross national product growth during the long-term. For Butte County, trucking will increase at a slightly greater rate than automobile VMT growth, resulting in a slightly increased ratio of trucks in Butte County's highway mode mix through the planning period.

Rail - Rail freight traffic rates will be closely tied to future economic conditions. For Southern Pacific, a projected drop in lumber shipments and increased competition from long haul trucking will result in somewhat reduced rail movement through Butte County. Western Pacific's biggest shipping season is during the late summer and fall when processed agricultural products are freighted east. The effects of the Union Pacific - Western Pacific merger are not yet clear as to their impact on future Western Pacific freight volumes.

The Sacramento Northern's recent drop in freight traffic is cause for concern because it implies that the railway may be abandoned by its owner. Any application for abandonment would be determined by the federal Interstate Commerce Commission (ICC) after any public protests were reviewed. The City of Chico has indicated its willingness to protest abandonment of Sacramento Northern rail service to Butte County.

Utility Gas and Electrical Corridors - No new natural gas or gasoline pipelines or major electrical transmission lines are forecasted to be constructed in Butte County during the planning period. However, because of forecasted growth in the Paradise - Paradise Pines area, PG&E may construct a second parallel 60 KV line next to its existing spur line between Chico and Paradise.

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- (1) The California Aviation System Plan, Volume II, Caltrans, May, 1981, Table V-2.  
(2) Ibid, Table V-7.



BUTTE COUNTY

CIRCULATION ELEMENT

Part Two

Section 7.0

Transportation Issues and Policies





BUTTE COUNTY  
CIRCULATION ELEMENT

Part Two

Section 7.0

Transportation Issues and Policies

This section identifies basic issues facing Butte County's transportation future and describes goals, objectives, policies and specific programs that will help guide the County in resolving transportation issues. This section is topically organized and is based on data and discussions found in Sections 1.0 through 6.0 - Basis for Policy. Policies and circulation maps are presented for both county-wide and urban area transportation issues.

7.1 Transportation Issues

Many concerns and issues are described by the Circulation Element's Basis for Policy section. These are summarized by the following list of transportation related questions:

1. How will Butte County accommodate major increases in traffic during the next 15 to 20 years, particularly in and between its urban areas?
2. How will Butte County keep pace with road maintenance needs in face of the prospects of continuing shortages of road maintenance revenues?
3. How are new road developments to be financed?
4. How active will the future state highway construction program be in Butte County?
5. How can intergovernmental coordination of land use and transportation plans be improved?
6. Will the utilization of urban "holding zones" or development reserves which allow contiguous and timely urban expansion, including for streets, be implemented?
7. What role will the availability and price of transportation fuels play in our transportation future?
8. How will future foothill developments affect circulation along present transportation corridors and around foothill communities and settlements?

9. Will Butte County's road standards for land divisions insure that future developments are served by adequately designed local and collector street and road patterns?
10. Will Butte County have adequate commuter air service in the future?
11. How can transit use, carpooling, and bicycle commuting be increased, and what other measures will be taken to reduce energy consumption, roadway congestion, and air pollution in Butte County?

## 7.2 Countywide Policies

Countywide transportation policies have been organized in a topical format. They apply to urban, suburban, and rural land use and circulation situations throughout the County, and should be cross-referenced, as appropriate, particularly when cumulative effects and impacts can be created by an action or series of actions over time. Figure A, on the following page, illustrates the functional classification of major roads, excluding major urban areas, in Butte County to the year 2000.

### 7.21 Transportation and Land Use

The California Government Code requires the County to correlate its circulation plans to its land use planning program. This requirement reflects the close interrelationship between transportation and land use planning.

#### Goal

- 1.0 Develop a transportation system in a manner that encourages efficient land utilization.

#### Objective

- 1.1 Accommodation of growth in areas presently serviceable should occur in a manner which is cost effective, safe and consistent with environmental constraints.

#### Policies

- 1.1.1 Existing road capacity available within the County road system shall be used to serve future development, unless construction of a new road will direct development into areas better suited for development than areas presently served by existing roads.
- 1.1.2 The transportation system shall be developed in a manner consistent with specified land use densities and estimated trip generation capabilities and which is consistent with the policy to encourage development in and around existing cities and community centers.
- 1.1.3 Circulation plans for the County's foothill areas should be designed around patterns which encourage development near existing highway corridors and emphasize development near existing rural community centers.





Figure A  
Countywide Circulation  
Major Road and Highway Classification  
(see jacket)



- 1.1.4 New road construction in agricultural areas will occur only to support the area's agricultural economy or to improve capacity of highway's which serve a Countywide and regional interest.
- 1.1.5 Construction of additional natural gas and petroleum products pipelines and electrical transmission lines shall occur along existing utility corridors.

### Objective

- 1.2 Provide an integrated system of roads and highways that serve all land use needs.

### Policies

- 1.2.1 Road system planning will emphasize preservation of the existing roadway network while working to increase the efficiency and capacity of the existing network.
- 1.2.2 The most important roads and highways should be designed and maintained to the highest possible level of service and convenience. The least important roads and highways should receive only the improvements necessary to maintain their structural integrity and operational safety. The relative importance of the County's road highway network is graphically illustrated in Figure A.
- 1.P Program: Priority Programming System - The Public Works Department, should develop a road and highway maintenance program which allocates funds according to functional classification categories, as defined in Section 5.0 based on relative needs in each category.

Implementation: Interdepartmental agreement to implement a proposed allocation program.

## 7.22 Fiscal

Fiscal policies are mainly concerned with 1) how to adequately finance future maintenance programs for existing roads, and 2) how to equitably finance new roads and necessary road capacity increases caused by new development throughout the County. Poor prospects for substantially increased road revenues to balance Butte County's current road maintenance needs leads to a forecast of future years of increasing road maintenance deficits in the County (Section 4.0).

## Goal

- 2.0 Road and highway programs should be defined so that the greatest benefits are obtained with a minimum use of limited financial resources.

## Objective

- 2.1 Provide an adequate road system that is within the County's ability to finance and maintain.

## Policies

- 2.1.1 All available public and private sources shall be used for the funding of road and highway development, improvement and maintenance.
- 2.1.2 Butte County will encourage and support sincere efforts by County residents to form assessment districts for road maintenance and road drainage.
- 2.1.3 It is suggested that the utilization of County road funds should focus on completing projects with a higher priority before completing a lower priority project. Proposed bridge and road projects will be classified in relation to the following priorities:

Priority One: Urgent Projects - Projects of an urgent nature that are clearly needed to protect the health and safety of the traveling public such as imminent bridge or road bed failure. Sample project: reconstruction of a storm damaged road bed where such damage has severely restricted traffic and access.

Priority Two: Safety Projects - Projects which are intended to reduce the number and severity of accidents along a particular road segment. Sample project: a change in road alignment where an alternative is needed to reduce high accident rates. Also includes traffic signals, stop signs, cross-walks, and other traffic engineering decisions.

Priority Three: Reconstruction/Maintenance Projects - Project which involves ongoing maintenance, rehabilitation, and reconstruction requirements needed to preserve the existing bridge and road network. Sample project: routine maintenance to prevent structural damage (as opposed to improvements in surface rideability).



Priority Four: Capacity Improvements - Projects that involve operational improvements to the existing road network that increase service efficiency and capacity.

Sample project: widening of an arterial road to increase capacity. Also includes Transportation System Management projects.

Priority Five: New Construction Projects -

Projects which involve construction of a new bridge or road. New County construction projects shall receive higher priority when they accommodate development in locations within reasonable proximity to centers of employment and shopping facilities and which encourage the conservation of energy in the transportation sector.

Sample project: construction of an urban area collector street.

- 2.1.4 The County will support State legislative efforts which increase road maintenance funds and benefit the County, as a whole.

### Objective

- 2.2 Encourage development in areas that can be served by public roads in a manner that does not become an economic burden to the County, over time.

### Policies

- 2.2.1 The short term and long term costs of improving and maintaining the circulation infrastructure will be a major factor in determining land use and development decisions.
- 2.2.2 The County will continue to seek solutions to an equitable allocation of road revenue resources.
- 2.2.3 The cost of new roads shall be borne as equitably as possible among benefiting property owners and/or users.
- 2.2.4 The County will pursue the development of a comprehensive fiscal impact model or program, including for traffic and road impacts, to assist in the analysis of cost and revenue balances from proposed development projects.

2.P Program: The County will study, develop and implement, as feasible, the following road related fiscal programs, over time:

- 1) Road assessment districts for maintenance of new development.
- 2) Development fees for off-site traffic impacts caused by new development. This program should first develop plans and schedules for specific developments that will contribute to the impact of circulation in surrounding locations. A long-term goal of a Countywide developer fee program for traffic impacts should be studied and implemented at a later date. Comprehensive road development fee programs should be jointly developed between the County and the cities of Butte County.
- 3) Drainage assessment districts in problem areas.
- 4) Enforceable road development agreements.

Implementation: Near and Middle Term.

### 7.23 Environmental

The following policies are intended to help mitigate the environmental impacts of transportation.

#### Goal

3.0 Minimize the negative impacts of transportation in the County.

#### Objective

3.1 Plan for transportation modes and strategies that ensure good air quality, reduce noise, reduce petroleum consumption, reduce the need to devote additional lands to transportation uses, and lessen the dangers presented by transportation of hazardous materials in the County.

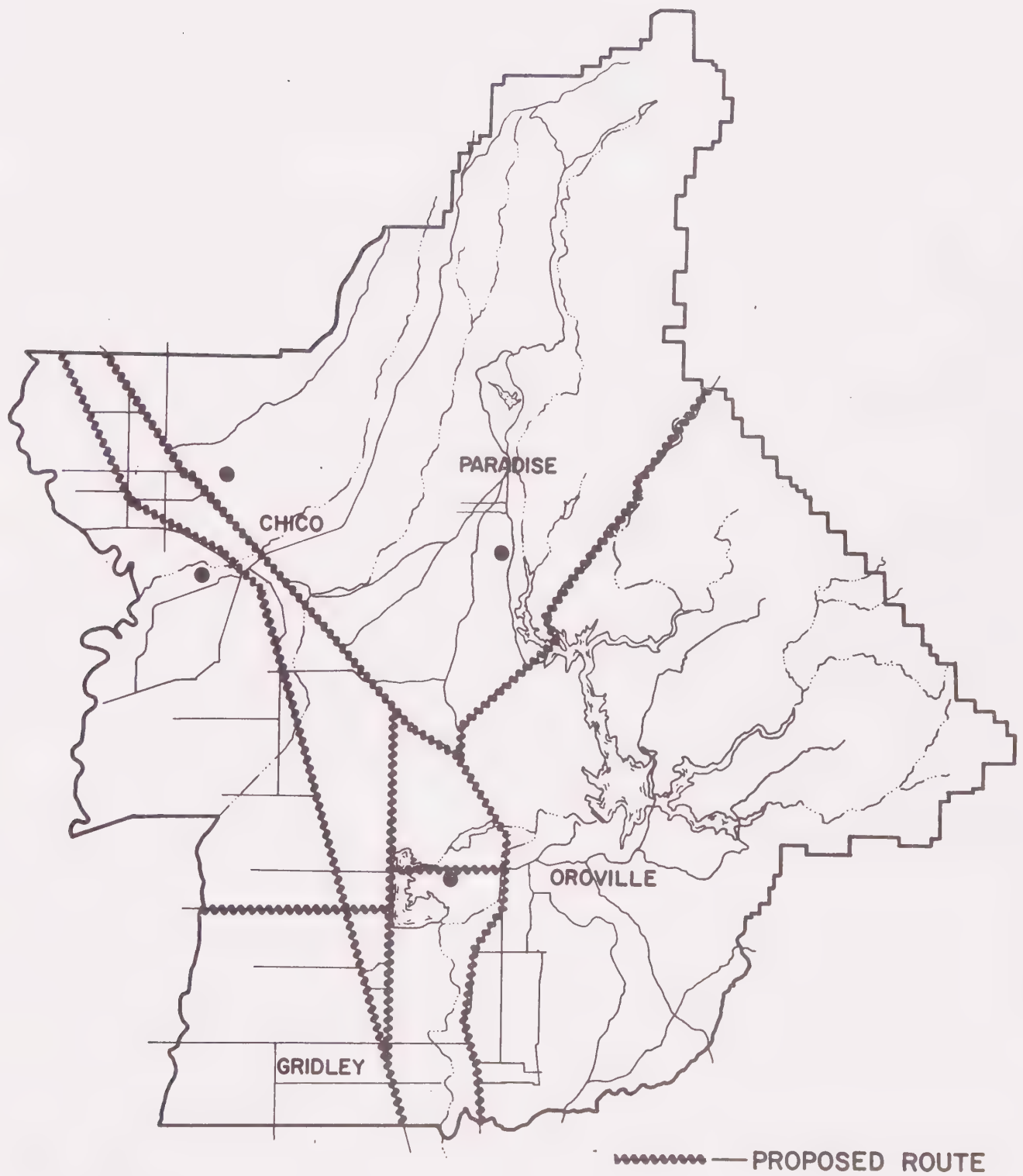
#### Policies

3.1.1 The County will support continued implementation of the State motor vehicle emission control program as part of the effort to meet and maintain federal air quality standards.

3.1.2 The effects of noise from County roads, highways, and airports shall be mitigated to comply with

# DESIGNATED HAZARDOUS AND TOXIC MATERIALS ROUTES

FIGURE B



all noise control policies in the General Plan.

- 3.1.3 Butte County will encourage transportation modes and programs that are capable of reducing total and per capita transportation energy consumption, including; public transit, bicycle commuting, ridesharing and carpooling, and increased federal vehicle fuel efficiency standards.
- 3.1.4 The County shall encourage the continued development and implementation of comprehensive state and federal programs for the regulation and monitoring of the transportation of hazardous and toxic materials on highways and railways in and through the County. Figure B indicates designated highway and rail routes for the transportation of hazardous and toxic materials in the County. Appropriate fire and emergency services agencies shall participate in plans for the transportation of hazardous and toxic materials in and through the County.

#### 7.24 Road and Street Standards

Policies for road and street standards should be appropriately related to various amounts and types of traffic that result from servicing different land use densities and planning areas. While design standards should ensure that a project be designed to solve a problem at a specific location, they should also ensure that circulation patterns be able to meet future traffic requirements.

#### Goal

- 4.0 Provide for a road and highway network that meets the needs of existing and anticipated movements of people and goods.

#### Objective

- 4.1 Provide for adequately designed road and street patterns to serve present and future traffic volumes.

#### Policies

- 4.1.1 For general and circulation planning purposes, the County will follow the system of classification of street, roads, and highways as described in Section 5.0 and illustrated by Figure A.
- 4.1.2 Rural arterial road and highway traffic capacity



levels should be planned to provide a level of service "B", and be considered to be providing acceptable service at level of service "C" when fiscal, environmental, or site constraints are prohibitive.

- 4.1.3 The County will insure that arterial routes continue to serve as major traffic carriers and remain free of unnecessary future intersections, driveways, on-street parking, and traffic overloads.
- 4.1.4 Right-of-way needed for new roads or expansion of existing roads shall be planned for; land uses that would preclude the timely development of such right-of-way shall be prohibited.
- 4.1.5 The County will ensure that all road systems, including private roads, connect various properties slated for potential development, both to each other and to a publicly maintained road system.
- 4.1.6 Usable road easements of adequate width shall be located as to most beneficially serve the needs of all parcels.
- 4.1.7 The County will assume maintenance responsibility only for roads which meet full County standards.
- 4.1.8 Private subdivision roads will be built to full County standards and they will be privately maintained as such throughout their maintenance cycle.
- 4.1.9 New roads resulting from land divisions will be constructed to County standards whenever an area has potential for significant traffic from future development. A lower standard may be considered reasonable for roads which will always serve as only lot access and will never be suitable to become County roads.
- 4.1.10 New land divisions should be held responsible for their fair share of the off-site road improvements needed to handle the traffic increases that they cause.

- 4.1.11 The County should encourage the utilization of development agreements as one way of ensuring that road development standards and plans are met.
- 4.1.12 The County will require erosion mitigation and control plans for new developments and for road encroachment permits to prevent soil loss during and after road development activities.
- 4.1.13 The County will, on an on-going basis, evaluate which roads are needed in the County road system and which roads should perhaps revert to private ownership.
- 4.1.14 Proposals to abandon or close County roads and right-of-ways shall address the impacts of abandonment on local land uses identified in the General Plan, and shall also address the impacts of alternative public uses of the right-of-way, such as bikeways, riding trails and hiking trails.
- 4.1.15 For the purpose of Section 66484 of the Subdivision Map Act, both urban and rural arterials and collectors shall be considered major thoroughfares.
- 4.P-1 Program: The County should adopt an erosion control plan requirement for the construction of public and private roads.  
Implementation: Adopt ordinance subsequent to adoption of revised Natural Resources and Recreation Element.
- 4.P-2 Program: The County should prepare a land division design manual which provides detailed guidance regarding improvement standards, including for roads.  
Implementation: Prepare and adopt within four years.

## 7.25 Safety

The following policies relate to safety issues involving police and fire protective services. Other road and highway safety issues, such as roadway quality or hazardous materials transportation are covered elsewhere.

### Objective

- 5.1 Support safety standards established by emergency and protective service agencies.

### Policies

- 5.1.1 All road systems, both public and private, shall provide for the safe evacuation of residents and adequate access for fire and other emergency services by providing at least two means of emergency access to an interconnected collector system.
- 5.1.2 The County will work with the Butte County Fire Department and the California Department of Forestry towards developing emergency evacuation routing plans for developing foothill and mountain areas with extreme fire hazard potential.

## 7.26 Special Studies and Specific Plans

Special studies and specific plans can serve to augment portions of the General Plan, including circulation plans. Specific plans can be a convenient way to systematically implement each element of the General Plan for designated planning areas in the County.

Special circulation problems can be created by significantly large development projects and cumulative population increases away from the main circulation network serving existing communities and urban centers and special studies and specific plans should be developed before advancing with such developments.

### Objective

- 6.1 Planning areas should be encouraged to develop with integrated, efficient, and well designed road systems.

## Policies

- 6.1.1 Specific plans shall be encouraged for land use, circulation, and cumulative transportation impacts for planning areas where land use designations and zoning lacks significant provision to adequately project future traffic conditions and/or where common circulation needs are appropriate.
- 6.1.2 Specific Plans developed for each planning area shall address circulation.
- 6.P Program: The County's rural foothill planning areas will, in many cases, require more precise land use designations and zoning in the Land Use Element before a reasonably accurate foothill circulation program can be projected.  
Implementation: Within three years after adoption of revised Natural Resources and Recreation Element.

## 7.3 Urban Area Policies

Additional transportation policies for the County's urban areas are intended to supplement countywide policies in the Chico, Oroville, Paradise, and Gridley-Biggs areas. Figures C through F designate the relative importance of the major street and highway network for each urban area to year 2000.

### 7.31 Interjurisdictional Coordination

Early contact and continuing coordination helps to ensure that the responsibilities and interests of all agencies are reflected and that objectives and policies are met in the development process.

### Goal

- 7.0 Promote coordinated transportation programs.

### Objective

- 7.1 Coordinate County transportation activities with all affected agencies.



## Policies

- 7.1.1 Urban area transportation planning boundaries shall be established on the basis of urban area land use plans, except in cases where unusual circumstances are warranted.
- 7.1.2 The County will conduct land use and circulation planning with the understanding that the Butte County Association of Governments will integrate its transportation planning process with local land use plans.
- 7.1.3 The County will consider city-initiated circulation element amendments to the County Transportation Element.
- 7.1.4 The County and its cities should develop mutual and complimentary policies regarding the timing and phasing of new urban area developments, as necessary for the logical and timely development of each urban area circulation network.
- 7.1.5 The County will jointly coordinate circulation capital improvement programs with the respective cities.

## 7.32 Urban Streets and Highways

Urban area arterial and major collector street and highway patterns are defined by Figures C through F, and should be used as a basis for planning future circulation patterns and improvements. Goals and objectives for urban streets and highways are similar to countywide goals and objectives.

## Policies

- 8.1.1 Urban street and highway traffic capacity levels should be planned to provide a level of service "C", and be considered to be providing acceptable service at level of service "D" when fiscal, environmental or site constraints are prohibitive.
- 8.1.2 Urban area street improvement standards should conform to city street standards and circulation plans for each respective city.



Figure C  
Chico Urban Area  
Major Street and Highway Network to Year 2000  
(see jacket)





Figure D  
Oroville Urban Area  
Major Street and Highway Network to Year 2000  
(see jacket)



Figure E  
Paradise Urban Area  
Major Street and Highway Network to Year 2000  
(see jacket)





Figure F  
Gridley-Biggs Urban Area  
Major Street and Highway Network to Year 2000  
(see jacket)



- 8.1.3 Reduced street widths will be encouraged when there are practical site planning opportunities and development cost savings involved, while not jeopardizing public safety and future capacity requirements.
- 8.1.4 Arterial and collector streets shall be developed so as not to diminish the integrity and cohesiveness of urban neighborhoods.
- 8.1.5 Major residential developments should ensure adequate circulation by providing interconnecting loops and collector street patterns. Cul-de-sac and dead-end streets should be avoided on streets with more than twenty (20) units.
- 8.1.6 Trees located along urban streets should be preserved or replaced in the event maintenance or upgrading requires tree removal. Similar landscaping should be considered in conjunction with the development of new urban streets and parking facilities. The County should continue working towards finding new ways to finance street tree programs, including for public and private sector contributions.

### 7.33 Public Transportation

Public transportation serves two basic functions for the County's urban residents, including the provision of mobility for the transportation disadvantaged and the provision of a transportation alternative to commuters, shoppers, and others.

#### Goal

- 9.0 Provide public transportation services that are viable transportation alternatives.

#### Objective

- 9.1 Public transportation programs will assure the continued mobility of transportation disadvantaged persons.

#### Policies

- 9.1.1 The County shall support local public transportation services in the

three largest urban areas and adequate intercity service to the Chico, Oroville, Paradise, Gridley-Biggs, and Palermo areas.

- 9.1.2 The County shall provide for coordination between social service transportation providers.
- 9.1.3 The County shall provide a level of social service transportation according to guidelines approved by the Butte County Association of Governments.
- 9.1.4 The County shall continue to support door-to-door transportation programs for low-mobility groups according to guidelines approved by the Butte County Association of Governments.

#### Objective

- 9.2 Public transportation programs will promote opportunities for shopping, employment, education, health care, and recreation, as funding and planning opportunities allow.

#### Policies

- 9.2.1 Public transportation use shall be encouraged through land use designations and zoning which cluster areas of employment, areas of parking, areas of commercial uses, and recreation areas, as appropriate.
- 9.2.2 Developers of major traffic generating land uses shall provide fixed transit facilities such as bus shelters and pullouts, according to expected demand.

#### 7.34 Bicycle Transportation

Primary emphasis for establishing bicycle routes should be in and near urban areas.

#### Goal

- 10.0 Provide for a safe and convenient bicycle transportation system which is integrated with other transportation modes.



## Objective

- 10.1 Provide for adequate bicycle circulation and facilities as a functional alternative to the automobile, and for recreation, as funding and planning opportunities allow.

## Policies

- 10.1.1 The County will encourage the cities to prepare and propose comprehensive urban area bicycle plans to the County for review and adoption.
- 10.1.2 Construction or expansion of all major arterials shall consider bicycle paths of Class II or better.
- 10.1.3 Residential developments should incorporate internal circulation networks that encourage bicycle use and which connect to the external bicycle circulation system.

Program: The County will map an integrated system of suggested rural bicycle routes which focus on serving as recreational routes around urban areas and use the map as an initial step, in conjunction with city bicycle plans, for establishing a comprehensive bicycle plan.

Implementation: Near and middle term.

## Objective

- 10.2 Provide a bicycle system which can be integrated with other transportation modes.

## Policies

- 10.2.1 Bicycle parking facilities should be encouraged in apartment complexes, major commercial, professional office, industrial, and educational sites, along with good routes, which foster bicycle use.
- 10.2.2 Multi-modal transportation facilities such as park-and-ride lots and bus stops, should provide adequate and secure bicycle parking facilities.

### 7.35 Pedestrian Circulation

Most facilities for pedestrians are incorporated into street design standards. The issue of pedestrian circulation also involves recreational hiking and jogging trails.

#### Objective

11.1 Pedestrian access should be ensured throughout urban areas.

#### Policies

11.1.1 Sidewalks, or their reasonable alternatives, should be provided in all urban subdivisions.

11.1.2 Handicapped access shall be incorporated into all sidewalks and other pedestrian facilities as required by State law.

11.1.3 Hiking and jogging corridors should be encouraged in urban areas, as funding and planning opportunities allow.

### 7.36 Air Transportation

Air transportation is a vital form of transportation that is important to the economic well being of the County's communities.

#### Goal

12.0 Promote safe, effective, and efficient use of existing and future air facilities.

#### Objective

12.1 Provide for compatible land uses in areas that may be impacted by airport operations, so to mitigate safety and noise problems.

#### Policies

12.1.1 The County shall implement measures in unincorporated areas that provide for the continued safe operation of airports.

12.1.2 The County will ensure that land uses in the vicinity of public airports are compatible with respective airport land use plans.

12.1.3 Private airstrips and landing fields shall be controlled to ensure that they are outside of flight paths to and from existing airports, and that they do not provide a hazard or annoyance to neighboring areas.

P.12 Program: The Airport Land Use Commission (Butte County Planning Commission) shall adopt and maintain airport land use plans for the Chico and Oroville airports.

### 7.37 Multi-modal Transportation

Multi-modal transportation refers to the coordination of two or more transportation modes. Coordination is encouraged by developing multi-modal transfer facilities, such as park-and-ride lots, combining bus stops with bicycle parking, bicycle parking with pedestrian-oriented developments, and adequate passenger waiting facilities for intercity bus and rail transport.

#### Goal

13.0 Provide for a balanced and integrated community transportation format.

#### Objective

13.1 Plan for transportation modes and strategies that ensure coordinated and complimentary facilities and schedules.

#### Policies

13.1.1 The County will support the cities in the encouragement of ridesharing and carpooling programs by large employers and public agencies.

13.1.2 The County shall encourage the provision, where feasible, of bicycle and automobile storage facilities to be used in conjunction with public transportation.



13.1.3 The design and location of new development shall consider and incorporate provisions for appropriate transportation modes.

13.1.4 Public facilities shall be located and designed to allow for convenient access and efficient transportation of all intended users.

13.1.5 The County will continue to support local Amtrak passenger services.

## 7.38 Additional Urban Area Policies

### Chico Urban Area

14.1.1 The County will maintain the integrity of the Chico area "greenline" adopted in 1982.

14.1.2 The County will cooperate with the City of Chico and the Air Pollution Control District in efforts to reduce traffic related carbon monoxide below levels which violate national ambient air quality standards in the Chico urban area.

14.1.3 The County will cooperate with the City of Chico in continued refinement of the Chico Urban Area Transportation Study (CATS) and its traffic projections and forecasts. The County will encourage Caltrans to study future traffic impacts on State Routes 32 and 99 as they relate to refinement of the CATS.

14.1.4 The County will support the City of Chico in efforts to retain Sacramento Northern rail service for the community.

14.1.5 The County should work with the City of Chico for a comprehensive solution to the role of Warner Street in northwest Chico.

### Oroville Urban Area

14.1.5 The County will encourage Caltrans to reconstruct railroad crossings on State Route 162 at an early date.

14.1.6 The County will cooperate with the City of Oroville in the preparation of a comprehensive transportation study based on projected urban area land uses.



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